

PEST CONTROL

25 no. 11
**NOVEMBER
1957**

EXD!

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J. C. Redd, Redd Pest Control, Jackson, Mississippi, new president of the National Pest Control Association, submits to some thoughtful grooming from his wife, Annie, just prior to the couple's participation in the banquet program which concluded the NPCA convention last month. Other NPCA officers elected for the 1957-58 fiscal year include Wayne K. Davis, Ailing House Termite Inspection Bureau, Oakland, Cal., executive vice-president, and Paul J. McMahon, of McMahon Brothers, Inc., Binghamton, N.Y., secretary-treasurer. For complete story, see pg. 19.

**Monthly Magazine of Methods, Chemicals, and Equipment for
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NON-CRYSTALLINE CHLORDANE



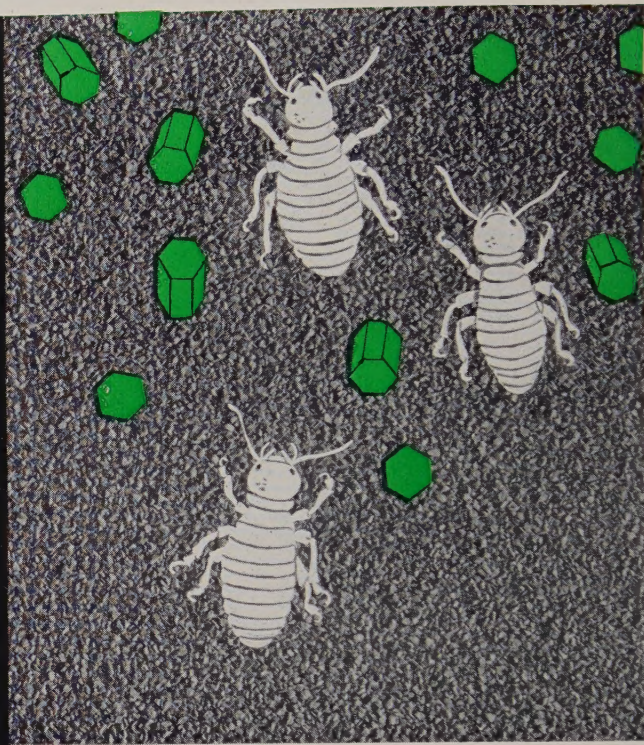
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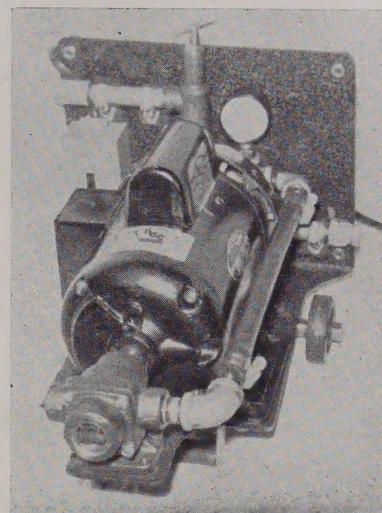
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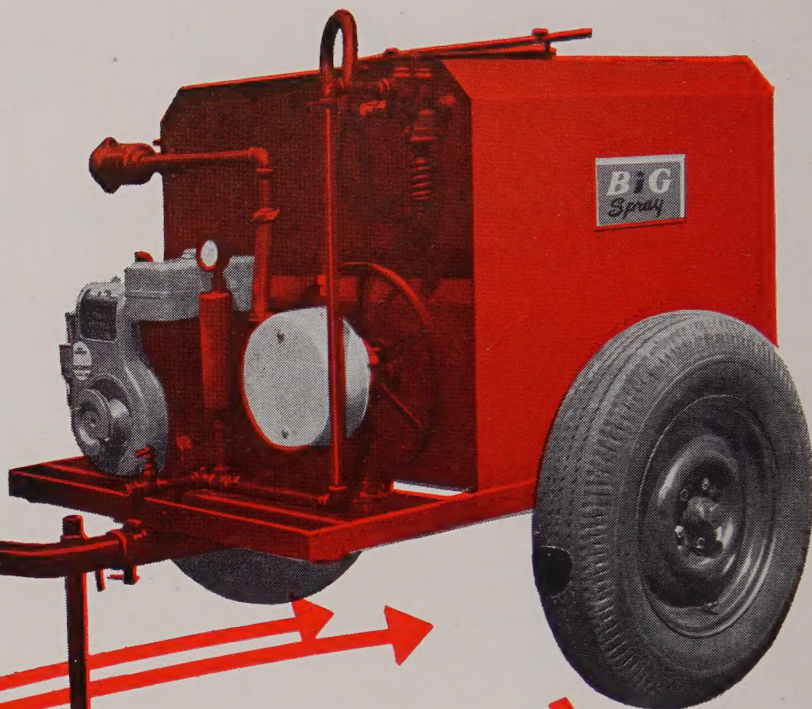
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Too Many Associations

There are too many pest control associations. This is especially true of local ones, but in some instances there is little justification for state organizations where PCOs are widely scattered. In unity there is supposed to be strength, but when there are dozens of small units all attempting to do the same thing, their combined strength is about as effective as a disorganized mob. Trade groups across the country are consolidating to eliminate duplication.

Frequently associations are formed hastily because one group is dissatisfied with the kind or lack of representation it thinks it should be getting from another, larger organization. But, after the first burst of enthusiasm, the new clique discovers it has really multiplied its problems with unimportant organizational details. There's a lack of lasting interest, a lack of leadership, and few, if any, who have the talent, time or money to take care of the routine business of running the organization. Result: the dis-organization has no representation at all.

Dues! Every association has them. If all the dues of all the 49 or more associations were lumped into one fund, imagine what could be done. The very best talent could be hired to direct an effective national public relations and publicity program. Professionally-prepared correspondence training courses could be provided all members of a singly strong organization so there would be more uniform pest control service. The industry could begin to have the kind of standards everyone wishes for, but few can do anything about. The possibilities challenge the imagination and would speed the pest control industry's rate of progress.

An increasing number of associations are putting the bite on suppliers, too, asking them to give financial support through either allied memberships or advertising in group publications, or both. What do suppliers really get for their money? How much more could be done if these pressure-derived handouts were pooled into one large research fund that would benefit the entire industry rather than paying for the printing of a piece of paper of limited distribution that's saved for a week or two.

Ideally, there could be a smaller number of associations, strong and well organized with dynamic leadership to handle regional problems. Industry members could pay to have their interests protected and promoted by qualified experts. Members would need to attend fewer meetings and could devote more time to their own businesses. Local problems could be handled through occasional informal meetings.



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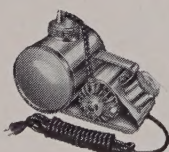
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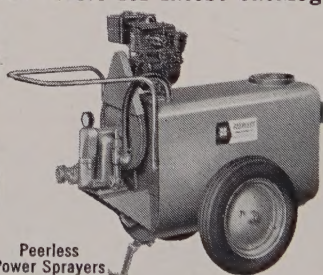
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Letters

Praises Service to Industry

I want to take this opportunity to express to the entire staff of *Pest Control* my sincere congratulations for the wonderful work they have done through their contributions to the pest control industry and the guidance and help they have given PCOs through their successful efforts in keeping all operators who subscribe to this national magazine posted on up-to-date methods and chemicals.

In fact, I do not see how any reliable PCO can successfully operate without its valuable information that always appears in every issue. I say this from my experience in managing a local company for 61½ years. It is not only valuable in keeping experienced personnel informed about current methods and chemicals, but I find it very helpful in training new servicemen.

I am opening a company of my own, Slayton Exterminating Company, and I feel the necessity of subscribing to *Pest Control* is as essential to my business as some of my equipment, in addition to the enjoyment I always get from our national magazine.

Curtis Slayton

Slayton Exterminating Company
Roanoke, Virginia

Applauds Redd Termite Views

I was very much pleased and surprised when I received my September issue of *Pest Control* magazine and read the article on page 37 entitled "Why Termite Control is Prescription Work" by J. C. Redd of Jackson, Miss.

Mr. Redd has hit the nail on the head when in the final summary he states that it has become necessary for TOs to educate themselves not only about chemicals and proper methods of their

(Continued on page 34)

Pest Control welcomes expressions of opinions from its readers. Send ideas and comments as briefly as possible to James A. Nelson, Editor, Pest Control, 1900 Euclid Avenue, Cleveland 15, Ohio.

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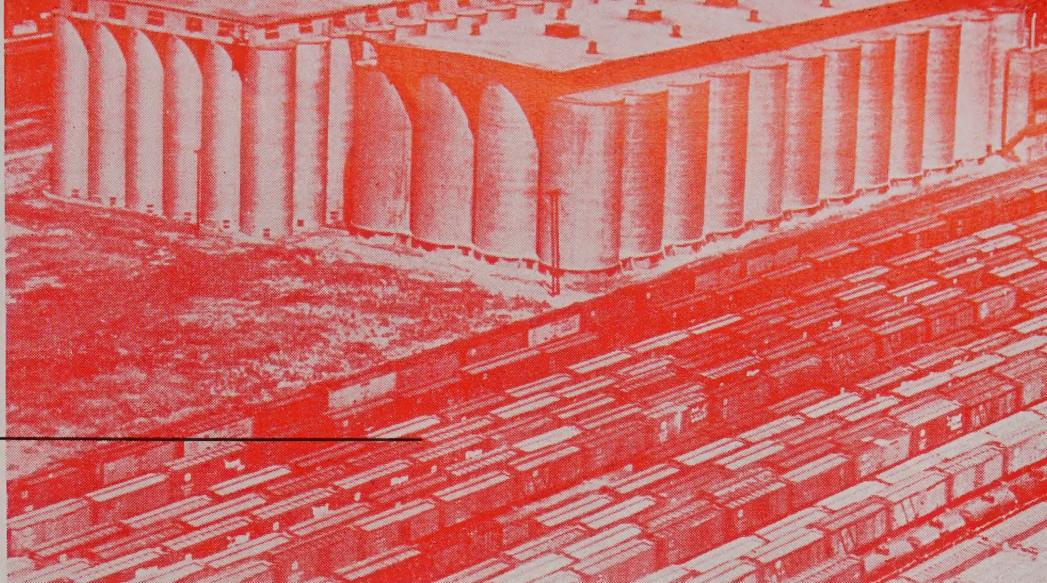
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PENICK

Fumigation of cereal products in the thousands of box cars which carry grain from elevators to processors offers a fertile field for the PCO. Here an expert, employed by one of the nation's larger milling companies, discusses opportunities available and how to solve some of the most common insect and rodent problems that a PCO might expect.



Box Car Fumigation of Cereal Products

IT IS RATHER difficult to believe a box car infested with insects, rats, or mice could be a fit carrier for food products. Yet this happens many times daily.

A recent announcement from the Food and Drug Administration in Washington, D.C. states it is conducting an investigation of box cars used to transport food products. Course of the study will be particularly directed toward this insect and/or rodent contamination of food products while they are being shipped or held in a box car prior to or following the transit period. Such an investigation is thoroughly welcomed by millers, bakers, wholesalers, and other interested parties. For a number of years, these industries have been under the constant surveillance of the Food and Drug Administration, and some representatives have a number of times been cited under that section of the Food, Drug, and Cosmetic Act, Section 402 (a) (4), which condemns an article prepared, packed, or held

under insanitary conditions whereby it may have become contaminated with filth.

Since railroad tariffs specify that a suitable car shall be furnished for the lading for which it is intended, why then, should not railroads be subjected to the same Government regulations as other industries?

A number of years ago, bakers and millers banded together and voiced a united appeal to the heads of American railroads for an improvement in the box car situation. Although they continue to voice their disapproval year after year, such requests receive little or no relief from the railroads, and it can only be assumed the railroads find it cheaper to pay claims than to improve their equipment. The Food and Drug Administration's announcement could change this picture, and the cheaper course might be to improve their equipment.

Insect and rodent infestation of transit origin of food products has already poured considerable business into the PCO's coffers by opening up new fields to him. And a crackdown by Uncle Sam would mean even more business. Yet in another light, this business sometimes leads to unhappy relations between operator and cus-

tomers, normally through no fault of the PCO.

Usually such misunderstandings stem from the inability of the PCO to obtain a satisfactory fumigation of a carload of food material. It is hard to convince the average layman box car fumigation is not the final answer, and each attempt does not always spell perfect results. Such failures can, in most cases, be traced to a box car which is so loose, it is practically impossible to make it tight enough to fumigate successfully. Less than 50% of the box cars in the U.S. today are built well enough so you can seal the doors and expect a satisfactory fumigation.

How to Find Leaks

Perhaps the simplest way to find out if a car can be sealed properly is to fog it with a "dry insecticidal fog." This will indicate where leaks exist, and whether or not it is practical to attempt to seal the car or not. If only a few small leaks appear, these can easily be sealed along with the doors. Fogging will often show many leaks along the eaves, floor cracks, and in cases of the wooden-sheathed cars, between the tongues and grooves. No wooden walled or sheathed

by **PAUL McSPADDEN**

Sanitation Engineer
Commander-Larabee Milling Company
Minneapolis, Minnesota

car will retain methyl bromide.

Before a fumigation is undertaken, you should investigate to see if food products are packed in paper containers, one thickness of which may be asphalt-laminated or of sisal-kraft paper. Such insulation makes it practi-

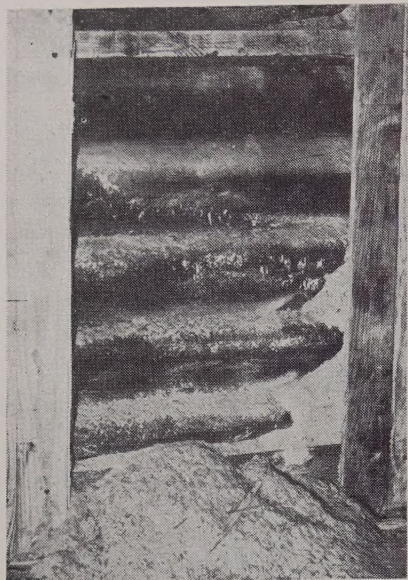


Figure 1. Voids, such as the one illustrated above between wooden and metal ends of box cars, offer ideal harborage for rodents and insects, grain authority McSpadden relates.

cally impossible to obtain a kill inside these bags or containers, should the infestation penetrate them. Methyl bromide will not penetrate these containers.

It is also difficult to obtain a kill in a car containing a product with high oil or fat content. Your fumigant manufacturer is in a position to tell you what products can or cannot be fumigated with methyl bromide.

Bromide Residues Undesirable

Residual bromides, caused by over-fumigating or multiple fumigations, have been the cause of considerable concern to flour users, especially when the flour goes into doughnuts, or other products fried in deep fat or containing a high fat content. This has caused undesirable odor and taste in the product, traceable to high residual bromide content.

Possibilities of building up residual bromides will be greatly lessened if the car being fumigated is checked beforehand and either made gas-tight if possible, or the product, unloaded and reloaded into another car that is gas-tight, prior to fumigation.

Cases have been observed in which a loaded car was spotted

for unloading on a team track, and when, upon inspection, insects were noted in the doorway, the consignee refused the load. Noted on the ground near the car was considerable cereal product spilled from a previous load. This spillage was thoroughly infested with insects capable of flying or crawling into the box car. It can only be assumed that these insects might have crawled or flown into the car. Such a possi-



Figure 2. Sidewalls in box cars are another convenient "hideaway" for mice and rats in box cars. If openings at the bottom of walls are not large enough, grain builds up inside.

bility exists during aeration, following fumigation of the car.

Box Car Harborage

Some railroad cars have been built in recent years with Fiberglas packed between the wooden and metal ends of the cars. This is done to fill the void which otherwise offers insects and rodents ideal harborage. When grains become lodged in these void areas, it is impossible to clean them out, unless the boards are removed, as shown in figure 1. This becomes a perpetual feeder for infestation into the car and into loadings shipped in it. Even fumigation of the car is no guarantee the infestation will be eliminated behind these linings. Often the material has become damp, and the fumigant fails to penetrate the mass, even though a satisfactory fumigation of the product seems apparent.

Other areas in box cars which may be insect harbors and possible hideaways for mice and rats are the side walls, indicated in

figure 2. Difference in construction of cars makes this especially true of many cars. Some are built with no opening at the bottom of the wall, allowing grain and other materials to build up inside the boxed-in area. Others are built with an opening at the bottom of the side wall, but too narrow to allow the material to flow out. Even the tongue and grooved lumber may hold up insects. Insect trails on the walls of the car, shown in figure 3, indicate that it is highly infested. Insects also find harborage in the accumulations on the ceiling, under the



Figure 3. Insect trails on the wall of this box car reflect a heavy infestation. Harborage may be on the ceiling, in walls, under the floor, or elsewhere in the car.

wooden ceiling of some cars, under the metal threshold plates, on the floor, cracks in the doorposts, in the wide floor cracks in many cars, and in the accumulations which can often be found on the guide rail below the doors of the car. To say that a box car is a rolling incubator for insects is putting it mildly.

Here are four key points to remember in box car fumigation.

1. Know the product you are to fumigate and how it will react to the fumigant to be used.

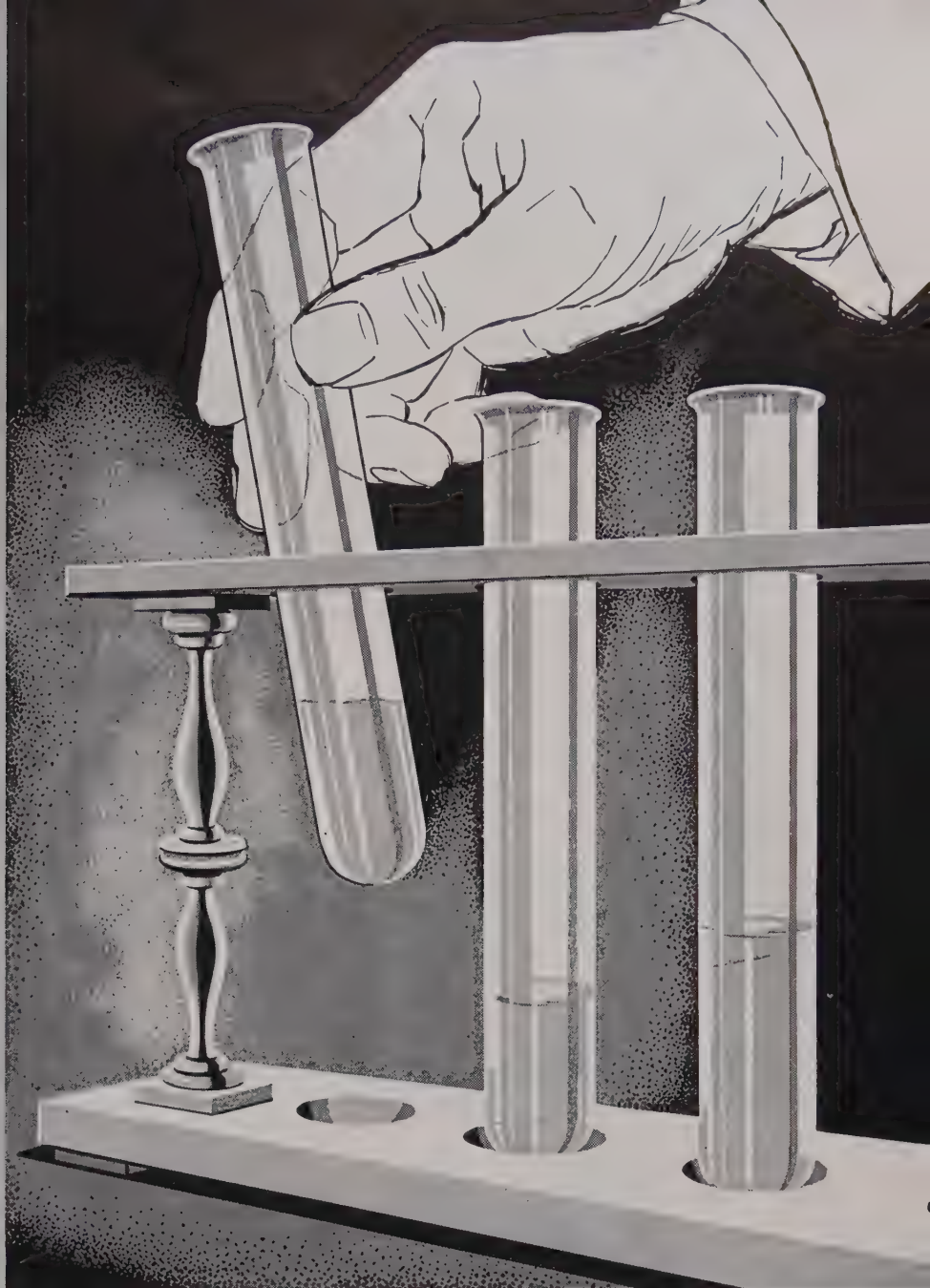
2. Know what the product is packed in and if the fumigant will penetrate the container.

3. Know the condition of the car to be fumigated, and if it will hold the fumigant to be used.

4. Know the perimeter around the car, and be sure it is not and will not cause you to have a fumigation failure.

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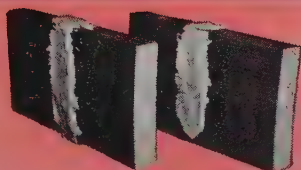
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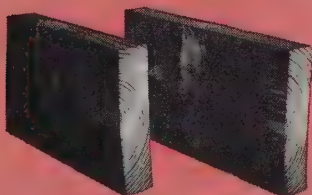
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for

Stored Products

Insects

by CHARLES C. HASSETT

Physiology Division
U. S. Army Chemical Warfare Laboratories
Army Chemical Medical Center, Maryland

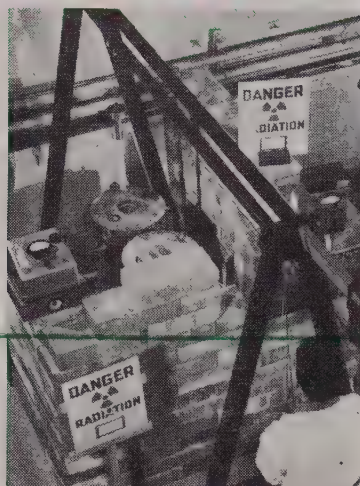


Figure 1. Technician attaches a canister loaded with insects to a carrier for insertion into radiation source.

Figure 2. Canister is lowered into a lead shield where insects are exposed to cobalt from all sides.

THE development of modern synthetic insecticides has greatly improved the protection of field grain crops and of grain in storage. When food grains are processed into consumer items, chemical protection is no longer possible, and such stored foods are vulnerable to insect pests. Other articles, such as clothing and wood products, are often subject to loss during prolonged storage. A better insecticide is wanted; one which will neither leave toxic residues nor permit the development of resistant strains of pests.

Such an insecticide is being developed for the treatment of various kinds of stored products. Its basis is the use of radiation on packaged materials. Treatment will kill any insects or eggs already in the package, and the sealed container will prevent any reinfestation. There will be no residue contaminating the products and no surviving insects to produce resistant offspring.

Types and Effects of Radiation

The term "radiation" is applied to various kinds of energy outputs, but in this article it refers specifically to only two. Beta and gamma radiation are produced by spontaneous changes in the unstable atomic nuclei of radioisotopes. Beta radiation consists of particles, or electrons, which can also be produced by the Van de Graaff generator, an

apparatus for the mechanical accumulation and release of these particles at high voltages. Gamma radiation is a form of pure energy almost identical with X-rays, but possessing greater power of penetration.

Both beta and gamma radiations are destructive to living things if absorbed in sufficient quantities. Both act in the same way, that is, they cause ionization when they pass through substances, and in living tissue this ionization can disrupt vital cellular elements such as genes and enzymes. These effects vary from species to species; thus man is more sensitive to a given dose than insects, and insects are more sensitive than bacteria. There is also variation in the individual at different ages, and in various systems of an organism. Insect eggs are more sensitive than larvae, and larvae are more sensitive than adults. Reproductive cells are generally among the most susceptible to the effects of radiation. In using radiation as an insecticide, it is, therefore, necessary to decide what effect is desired in order to know the magnitude of the dose to be administered.

Experiments

In order to ascertain the doses of radiation needed to kill insect pests, Hassett, and Jenkins measured the lethal effects of gamma radiation from a powerful cobalt-60 unit at Brookhaven National Laboratory. The insects were put into shell vials with suitable food media for each species, and the

vials were loaded into a canister (Fig. 1). The canister was then lowered into a lead container where the insects were subjected to radiation from all sides in the tubular cobalt-60 source (Fig. 2). At the end of the exposure period, the insects were removed and checked periodically to ascertain the results. Doses varying from 16,000 roentgens in five minutes to 322,000 roentgens in 100 minutes were administered. The highest doses caused rapid death; and the lowest caused heavy mortality after varying periods but suppressed reproduction at once. Fig. 3 shows the effect of an intermediate dose which is thought to be approximately correct for desirable results on a large scale. Nearly all the test insects succumbed in a week or less, and all died within three weeks. Individuals surviving the initial effect were not active and could be considered harmless. Later experiments by Proctor et al. gave similar results.

These experiments show insects

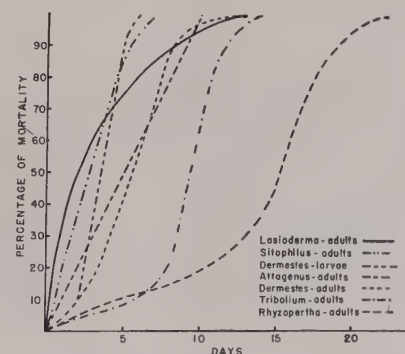


Figure 3. Mortality rate of six insect species after exposure to 64,400 roentgens.

Original photographs in this article are through the courtesy of the Brookhaven National Laboratory. Figures 1 and 3 are reproduced with permission of Nucleonics.

can be killed by moderate doses of radiation. Application of this knowledge will be possible as soon as suitable processing units are designed. Testing of such a unit is already under way at Michigan State College by Wiant and Baker, using a Van de Graaff electrostatic generator. This machine permits the processing of fairly large quantities of grain by passing it through an electron beam on a conveyor line. The low penetrating power of electrons limits the depth of the material to a thin layer, but offers less hazard because of the relatively light shielding required to protect personnel. When not operating, of course, there is no radiation from this generator, and repairs can be made with no hazard.

Sources of Radiation

The current and future operation of nuclear reactors presents the problem of utilization or disposal of highly radioactive wastes in increasing quantities. Radiation energy for many purposes can be made available by developing suitable processes for the concentration and separation of the various species of isotopes in the fuel waste. Cesium 134 is considered to be one of the best isotopes for irradiation units requiring considerable penetration, since it has strong gamma radiation and its half-life of 2-3 years (decrease to 50% of original strength in that time) makes

frequent renewals unnecessary.

Another way of using the radiation from the pile wastes is simply to transfer the spent uranium slugs to irradiation units without any processing, thus utilizing all the radiation, beta and gamma, of the many isotopes in the waste. Both methods may be found useful under varying circumstances. The cost of separation of the isotopes will probably decide the choice.

For the safety of personnel operating any unit utilizing reactor wastes, heavy shielding would be a necessity. It will probably take the form of a thick concrete box enclosing the radioactive material, with a conveyor belt or roller line to carry packaged material in and out. Provision will be made for safe handling of the isotopes while loading the unit and removing the exhausted elements. Also, because some radiation may escape from even a good shield, and because accidents could expose employees to danger, standard health physics procedures, such as the installation of automatic monitoring meters and the wearing of film badges by personnel, would be necessary.

With the exception of the Van de Graaff unit at Michigan State, it is not known that a unit of either type is in operation at present. There is, however, much interest in developing irradiation units, not only for disinsecti-

zation, but for many other purposes. Not long ago there was held at Brookhaven National Laboratory a conference devoted to discussion of the need for and development of units to treat potatoes before storing. Doses of 20,000 roentgens have been found to prevent sprouting of potatoes, even when storage is at room temperatures. Plans for several types of irradiation units were presented to the conference, all of which could be used equally well for disinsectization. One was a fixed unit, others were designed for mounting in either railway freight cars or heavy auto trucks.

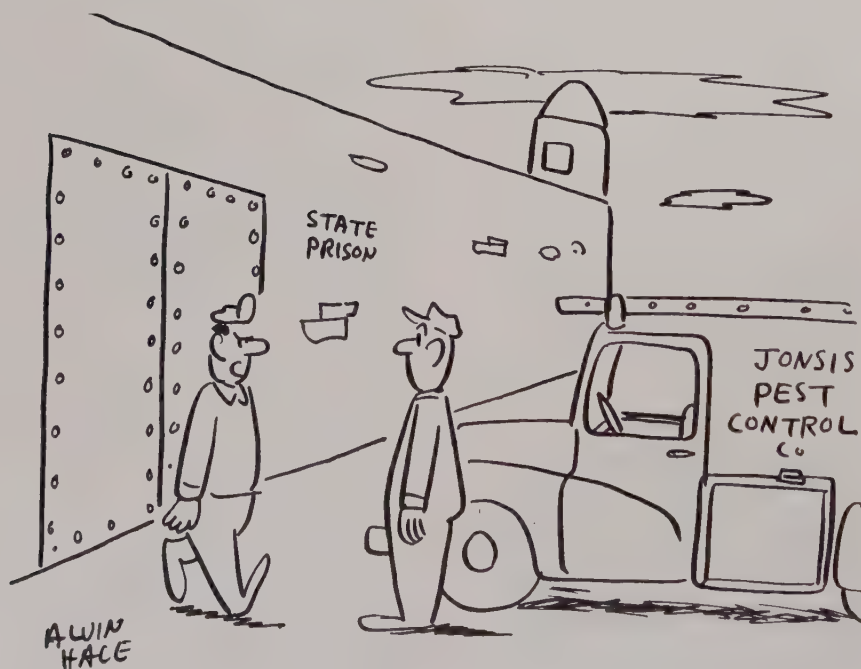
Costs

Cost estimates for these units were also presented, and these estimates would be equally valid for treating materials other than potatoes. The Brookhaven laboratory presented plans for a truck-trailer unit capable of processing 15 tons a day at \$10.00 per ton; and the Fission Products Laboratory of the University of Michigan presented their conception of a unit, either fixed or box car mounted, which could process 27 tons per hour (fixed installation, only 8 tons per hour in mobile units) with costs of approximately \$2.50 per ton for the latter but only \$0.94 per ton for the former. These costs are based on construction and operation.

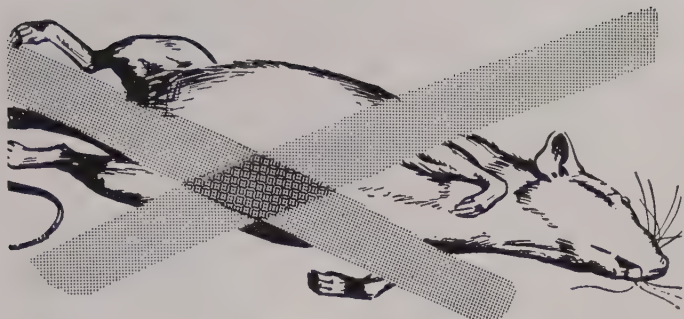
Both the processor and consumer of foods subjected to irradiation will ask whether or not any radiation is induced in treated materials. The answer is that under the conditions described above, that is with the type and quantity of beta or gamma radiation needed to kill insects, there will be no radiation in the processed material. Neither is there any change in taste or other qualities, as has been demonstrated in a number of tests. There should, therefore, be no long delay in the practical application of this new means of protecting stored material against insect damage.

Literature Cited

- Hassett, C. C. and D. W. Jenkins. 1952. Use of fission products for insect control. *Nucleonics* 10, (12): 42-46.
- Proctor, B. E. et al. 1954. The use of ionizing radiations in the eradication of insects in packaged military rations. *Food Technology* VIII, (12): 536-540.
- Wiant, D. E. and V. H. Baker. 1956. Michigan State scientists use electron beam machine for insect control studies. *Pest Control* 24, (12): 14-15.
- Proceedings of a conference on biological, physical, and industrial aspects of potato irradiation. Department of Biology, Brookhaven National Laboratory, 1955.



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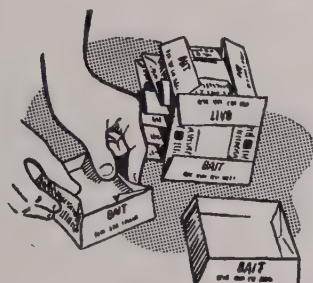
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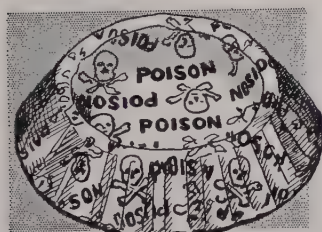
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Calendar

CDC Mosquito Control Training Course, Atlanta, Ga., Nov. 4-8.

Pest Control Operators Short Course Virginia Polytechnic Institute, Nov. 6-8.

Professional Exterminators Assn. November Meeting, Museum of Natural History, New York, N. Y., Nov. 11, 8 p.m.

American Public Health Assn. 85th Annual Meeting, Cleveland Public Auditorium, Cleveland, O., Nov. 11-15.

Oklahoma Pest Control Assn. November Meeting, Room 122, Capitol Building, Oklahoma City, Nov. 12, 7:30 p.m.

Kansas Pest Control Operators Annual Convention, Hotel Jayhawk, Topeka, Nov. 17-19.

Carolinas - Virginia Pesticides Formulators Assn. Meeting, Carolina Hotel, Pinehurst, N. C., Nov. 18-20.

New Jersey Entomological Convention Annual Fall Meeting, New Brunswick, Nov. 21.

Texas Pest Control Assn. 13th Annual Convention, Baker Hotel, Dallas, Nov. 21-23.

Entomological Society of America Annual Meeting, Hotel Peabody, Memphis, Tenn., Dec. 2-3.

Nebraska Assn. of Pest and Termite Control Operators Fall Meeting, Castle Hotel, Omaha, Dec. 5-6.

Chemical Specialties Manufacturers Assn. 44th Annual Meeting, Hollywood Beach Hotel, Hollywood, Fla., Dec. 9-12.

North Central Weed Control Conference, Hotel Savory, Des Moines, Ia., Dec. 10-12.

Eastern Pennsylvania Pest Control Assn. December Meeting, Sylvania Hotel, Philadelphia, Dec. 12, 6:30 p.m.

Exposition of Chemical Industries, Coliseum, New York, N. Y., Dec. 26-27.

CDC Identification and Biology of Arthropods Training Course, Atlanta, Ga., Jan. 13-24.

North Carolina Pesticide School, College Union Building, North Carolina State College, Raleigh, Jan. 21-22.

Pest Control Operators Conference, Purdue University, Lafayette, Indiana, Jan. 27-31.

Pest Control Operators Short Course, Student Union Building, North Carolina State College, Raleigh, Feb. 4-6.

American Mosquito Control Assn. 14th Annual Meeting, Willard Hotel, Washington, D. C., Feb. 23-26.

CDC Insect Control Operational Training Course, Purdue University, Lafayette, Ind., April 7-11.

Chemical Specialties Manufacturers Assn. 44th Mid-Year Meeting, Netherland Hilton Hotel, Cincinnati, O., May 19-21.

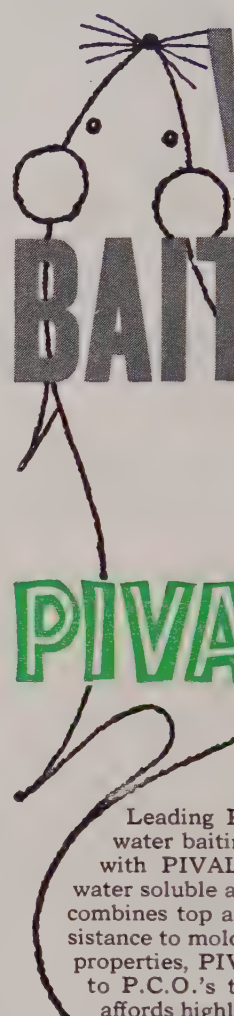
CDC Insect and Rodent Control Training Course, Atlanta, Ga., June 2-3.

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PEST-O-GRAM 6

By D. CARL LELLA

This month's Pest-O-Gram winds up the series on PCO terms and abbreviations prepared by New York Housing Authority exterminator foreman, D. Carl Lella, a true crossword puzzle hobbyist. Under headings, "Across" and "Down", numbers preceding descriptive phrases indicate the square in which the needed word begins. The figure in parenthesis at the right of the phrase gives the number of letters required.

1	2				3		4			5	6
7				8		9					
10		11	12	13			14				
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32					33				34		
	35							36			
37								38			

- | ACROSS | Letters Required Across | DOWN | Letters Required Down |
|--|-------------------------|---|-----------------------|
| 1. Associated with skull on labels | (10) | 1. Chlorinated hydrocarbon used in roach control | (9) |
| 4. Insect dwelling units | (5) | 2. Repugnant or distasteful chemicals | (10) |
| 7. Type of lice | (4) | 3. Plague of the fourteenth century | (10) |
| 8. Winged | (6) | 5. Emetic of choice | (6) |
| 10. Lbs. per square inch (abb.) | (4) | 6. Underground | (12) |
| 13. Praying insect | (6) | 9. Pharos | (3) |
| 15. Any insect that transmits germs | (6) | 11. Associated with 1 across | (5) |
| 16. Fears 14 down | (3) | 12. Climbing vine | (3) |
| 18. Kilogram (abb.) | (2) | 13. Flesh bait | (4) |
| 19. ---- morphosis | (4) | 14. Male cat | (3) |
| 22. Unclean | (5) | 17. Fifth segment of the insect leg | (6) |
| 25. Formal permit | (7) | 20. Fever, transmitted by lice | (6) |
| 27. Hopping ectoparasite | (4) | 21. To weaken by "cutting" pesticides | (6) |
| 28. This is sometimes accused of carrying insects in addition to household effects | (3) | 23. Itemized bill | (7) |
| 29. Ovum (pl.) | (3) | 24. Lessees | (7) |
| 34. What we can do when 23 down is not honored | (3) | 26. Treatment here is a must in building rodent control | (6) |
| 35. Compensation for professional services | (3) | 27. Rat droppings | (5) |
| 36. Plate metal used for patching rat holes | (3) | 30. Air passage opening | (4) |
| 37. Upright piece of a step from tread to tread | (5) | 31. Sol | (3) |
| 38. How a cocoon is formed | (4) | 32. Title of respect | (3) |
| | | 33. Hydrocyanic (abb.) | (3) |

Answers on page 48

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Skipper of NPCA activities is its executive secretary, Dr. Ralph E. Heal (holding cigar in center of left photo). He and 500 other delegates to this year's convention boarded Johnston's party boat, "Chaperon", for a leisurely Tuesday afternoon cruise up the Ohio River. A trio provided music for dancing and singing, but most PCOs huddled in small groups buzzing with shop talk before settling down for their dinner aboard.

PCOs to Board New Era As NPCA Chaperons Industry Toward Certification of Termite Soil Pre-Treatment, Louisville Convention Delegates Decide Last Month

Certification of some termite control operations may become a reality under a plan presented to NPCA members last month. Delegates to the National Pest Control Association annual convention held in Louisville, Kentucky's Brown Hotel, October 20-24, heard and accepted a statement of principles prepared by the Association's Wood Destroying Organisms Committee. The suggestion is that minimum standards be established, guaranteed and certified to meet soil pre-treatment requirements similar to those which may be included in the Federal Housing Administration's forthcoming revision of its Minimum Property Specifications.

No details have been worked out at this time, but months of study and preparation have been devoted to establishing a set of principles which might be acceptable to the NPCA membership and any interested Federal agency.

Only work to be certified under the proposed program is the treatment of soil with termite toxicants at the time of residential construction to provide protection against termite attack. No other phase of termite work

is to be included in the program.

It is contemplated there would be three types of certification: (1) covering the firm which applies the chemicals, (2) covering qualified service personnel, and (3) dwellings treated.

Adequate assurance will probably be required of a firm's financial stability, its experience, and other qualifications. Individuals must prove themselves experienced and capable of doing certified work. Full requirements are yet to be written.

Administration of the certification program will undoubtedly be the responsibility of a Certification board headed by a paid director. Composition of the Board looks as though it will include representatives of the pest control industry as well as representatives of allied professional groups to insure the interests of the public. Under tentative plans, it is proposed the Board establish standards and/or qualifications for certification and police certified operations to see that these are being met. It would prepare and give examinations, issue certificates, and generally carry out work required to properly administer the program.

Financial support of the plan

would probably come from (1) initial certification and examination fees for each firm, (2) certification of individuals, (3) annual renewal of certification fees, and (4) fees required for certification of each dwelling treated.

In addition, each certified firm may be required to place with the Certification Board a cash deposit to be held in escrow for as long as the firm remains certified.

Dr. Ralph E. Heal, executive secretary of the NPCA, reported to the membership that exact details of this far-reaching program have yet to be carefully worked out, but the association's Board of Directors had accepted the principle of certification of termite soil pretreatment work. Industry discussion of the plans had been ensuing for more than four weeks prior to the convention. The convention floor was open for suggestions and observations. After many expressions of confidence in the committee which prepared the proposal, delegates accepted the Wood Destroying Organisms Committee Report on the principle of certifying the type of work outlined. They authorized the WDOC to work out details of the pro-

gram which would be approved by the association's executive board, and instructed the executive secretary to present the completed proposal to the FHA.

Members of the special committee on Termite Pretreatment who will have the responsibility of working out the program's details are: Myron W. Smith, Hill-Smith Systems, Memphis, Ten-



Subjects of technical importance were covered in convention talks by, left and right, seated, **Dr. Carroll N. Smith**, In Charge, USDA Laboratory, Orlando, Florida, and **George L. Hockenjos**, Sentinel Laboratory, Springfield, Illinois; and behind them, left to right, **Dr. James McD. Grayson**, head, Entomology Section, Virginia Polytechnic Institute, Blacksburg; **Walter Dykstra**, Assistant to the Chief, Predator and Rodent Control Branch, U.S. Fish & Wildlife Service; and **William Elo**, Pest Exterminators Co., San Antonio, Texas, chairman of the NPCA's Insecticide Committee.

nessee; Charles Kyle, Extermital Termite Service of Dayton, Dayton, Ohio; J. Wilfred Gunn, Hollywood Termite Control Co., Los Angeles, California; Paul K. Adams, Adams Pest Control, Alexandria, Louisiana; T. Roy Young, Young-Jones Laboratory, Tampa, Florida; Alva H. Bender, Bender Termite Control, Washington, D.C.; and Harold Schnorrenberg, Dead Shot Chemical Co., Oklahoma City, Oklahoma.

If the certification program is accepted by the FHA, the earliest date at which the proposal could become a reality would be around June 1 of next year.

The convention, which attracted an estimated record attendance of 570, was highlighted by discussions on business, new control chemicals, safety, and rodent and insect repellents.

Presiding over the technical discussions was Dr. Ralph E. Heal, NPCA Executive Secretary. Herman L. Fellton, Getz Exterminators, Inc., St. Louis, Mo., and E. H. Purcell, E. H. Purcell & Co., Ft. Wayne, Indiana, supervised sessions on business topics, and Dr. Philip Spear, NPCA Technical Director, chaired talks on PCO safety.

Resistant Roach Experiments

Results of tests designed to determine effectiveness of insecticidal deposits on chlordane-resistant and non-resistant female German roaches after formulations had aged 2, 7, 15, 30, and 60 days were described at the convention by Dr. James McD. Grayson, head, Entomology Section, Virginia Polytechnic Institute, Blacksburg.

Thirteen formulations involving chlordane, dieldrin, malathion, Diazinon, Dilan, American Cyanamid 4124 (Dicapthon), and Dow ET-14 (Korlan) were tested on tempered masonite panels; a 2.0% malathion emulsion was tested on galvanized sheet metal panels; and a 0.5% Diazinon emulsion, on panels of glass,



Between talks at the NPCA convention, **Dr. Thomas E. Snyder**, left, of Washington, D.C., world's foremost authority on termites, discussed his pet subject with, left to right, in the foreground, **Cloyton Wright** of C. Wright Associates, Dallas, Texas; **Truman Thomas**, Anti-Pest Co., Shreveport, Louisiana, and **R. J. Kowal**, chief, Division of Forest Insect Research, U.S. Forest Service, Asheville, N. C.

plastic tile, painted wood, congo-
leum, inlaid linoleum, and wallboard.

Of major significance in control patterns, Dr. Grayson pointed out, was the performance of 1.0% and 2.0% American Cyanamid 4124 emulsions on masonite panels. Complete control was achieved on both resistant and non-resistant strains through 15 days, and 97-100% through 60 days.

Other formulations giving 97-100% control for 60 days against both resistant and non-resistant strains included a 0.5% Diazinon emulsion and 0.5% Diazinon in an oil base; and a 0.5% American Cyanamid 4124 emulsion. A 1.0% Dow ET-14 (Korlan) emulsion was 97-100% effective on both strains through 30 days and 92-96% effective after 60 days. A 2.0% malathion emulsion

gave 97-100% control against resistant strains through 30 days, but effectiveness eased to 92-96% after 60 days, while control of non-resistant roaches varied from 97-100% after 7 days to 92-96% after 60 days. A 2% malathion formulation with an oil base was 97-100% effective on both strains through 30 days and 92-96% effective after 60 days.

Dr. Grayson also drew attention to the performance of a 0.5% Diazinon emulsion on plastic tile. Although applied to this relatively slick surface, the formulation was 97-100% effective against resistant roaches through 15 days, and 92-96% through 30 days. After 60 days, the control was 50-74%.

A 0.25% Diazinon emulsion afforded 97-100% control of both strains through all periods, except after 60 days against the resistant one. Then it slipped to 85-91%.

A 0.5% dieldrin formulation with an oil base was only 50-74% effective against resistance after two days, and 0-50% effective the balance of the test period. Against non-resistance, it was reported by Dr. Grayson to be 75-84% effective after each trial period, except the 30-day point, when effectiveness backed off to 50-74%.

A 1.0% malathion emulsion yielded 97-100% resistant roach control after 2, 7, and 30 days, while it was off to 92-96% after 15 days, and 85-91% after 60 days. Against non-resistance, it fluctuated between 92-96% after 7 days to 75-84% after 60 days.

Against non-resistant roaches 2.0% chlordane oil base solution varied from 97-100% after 2 days, to 85-91% through 30 days, and 75-84% after 60 days. A 2.5% Dilan emulsion gave 0-50% control on both strains throughout the experiment.

In tests on painted wood with 0.5% Diazinon, effectiveness varied from 92-96% after two days, to 85-91% through 30 days, and 75-84% after 60 days. A 2.5% Dilan emulsion gave only 0-50% control on both strains throughout the test period.

On congo-
leum flooring and inlaid linoleum with 0.5% Diazinon, Dr. Grayson said control dropped from 97-100% after 2 days to 0-50% after 60 days on both strains. Wallboard was 97-100% effective against the two

through the major part of the tests, but finished 92-96% after 60 days

Dr. Grayson indicated panels were dipped in the insecticidal formulations, allowed to dry, and then suspended from the ceiling joists of a service building until ready for use. Researchers ran each test four times, he said.

Resistant Flea, Tick Research

In other resistance experiments, Clayton Wright of C. Wright Associates, Dallas, Texas, and chairman of the NPCA Southwest Regional Insecticide Committee, reported to the convention on flea and brown dog tick research in the Dallas area, where brown dog ticks and fleas have built up resistance to chlorinated hydrocarbons.

"The condition appears to be prevalent throughout the southern part of the U.S.," Wright observed. "For indoor and outdoor control of resistant fleas, both malathion and Malrin have given excellent control for the past two years, and have shown no loss in effectiveness. However, these materials have not given practical control of resistant brown dog ticks."

Wright said 35 committee tests indoors and outdoors have been conducted with 0.5% formulations of Diazinon and Dicapthon on fleas, and 0.5-1.0% on brown dog ticks.

Only one of the five indoor flea jobs performed with 0.5% Diazinon required retreatment, while one of four outdoor calls with the same formulation needed retreatment. Only one indoor and outdoor treatment was given with 0.5% Dicapthon, and no retreatments were needed.

"In controlling fleas indoors and outdoors, both compounds appear effective at 0.5%," Wright noted. "Water emulsions were used outdoors, and either emulsions or oil solutions indoors. Application rates averaged one gallon of emulsion per 100 square feet outdoors, and one gallon of spray per 1,000 square feet indoors. Standard application procedures were followed."

In brown dog tick control research, Wright said four retreatments were needed on 10 outdoor jobs with 0.5-1.0% Diazinon, while none of three indoor treatments made with the same formulation needed repeats. Of nine outdoor jobs with 0.5-1.0% Di-

Convention Snapshots. (1) NPCA executive assistant Robert L. Showalter and Mrs. Showalter at banquet table. (2) Convention chairmen, James V. Benschofer and J. Harvey Sturgeon, confer over final arrangements before PCOs begin to arrive. Every delegate was given a string tie and the opportunity to manipulate it into a presentable bow. Most went across the street and purchased a more convenient clip-on version. (3) The Brown Hotel climaxed Thursday's banquet by marching in an ice display of the NPCA's initials, a perfectly formed termite, and a PCO service truck. At lower left, watching our cameraman, is NPCA past president, Robert C. Yeager. His son, Wayne, was blinded by our camera's flash. (4) Mrs. Helen Buettner presented an oil portrait of her late husband, William O. Buettner, first president and 20-year NPCA executive secretary, to the association to hang in its new Elizabeth home. Myron W. Smith, right, retiring president, expressed the membership's appreciation and thanks. (5) Better than 570 registered for the 4-day meeting. Registration details were supervised by Louisville PCO, George M. LaChance (in suit coat, white shirt and string tie), staff assistant, Thomas H. Mahon (white shirt, rear right) (6) Col. E. O. Stroube, executive secretary of the Texas Pest Control Association, was but one of the score of associations represented. (7) Part of the PCO crowd which filled all three decks of the Ohio River cruise ship, Chaperon.

capthon, five needed retreating, but none of the two done indoors required follow-up service.

"Application rates for brown dog tick control ranged from one to five gallons of spray per 100 square feet outdoors, and one gallon per 1,000 square feet indoors," Wright explained. "Tick control in yards generally requires larger quantities than flea control. For control of brown dog ticks, Diazinon and Dicapthon appear to be more effective than malathion, but numerous retreatings were necessary on outdoor applications using either chemical."

Wright cited several precautions that should be observed by persons using Diazinon and Dicapthon. Only freshly prepared water emulsions should be employed with Diazinon, while present formulations of Dicapthon, which is still in the experimental stage, may cause staining of alkaline surfaces, he claimed.

Dicapthon Research

Tests conducted on Dicapthon by the NPCA Insecticide Committee yielded evidence the organic phosphate gives quick kill and long residual life that should make it useful against roaches resistant to chlorinated hydrocarbons, according to William I. Elo, Pest Exterminators Co., San Antonio, Texas, chairman of the committee. In a talk before the convention, Elo said all reports from committee members had not been received and processed, so his summary of research results was more a progress outline than conclusive information on the



merits or disadvantages of Dicapthon.

"Experience to date in the use of Dicapthon indicates there are problems of odor and staining to be overcome," he pointed out. "The odor of the liquid formulation we have tested is sharp, but less objectionable than that of malathion, and the odor seems to be short-lived.

"The stain problem was negligible in most parts of the country, but serious in some areas of Texas. The yellow stain is apparently the result of a chemical reaction with alkaline materials and in some instances has turned concrete yellow. But the manufacturers feel this is a formulation problem which can be solved by their technicians."

Elo said limited research results in his possession indicate Dicapthon kills German roaches faster than malathion or Diazinon, although its effective life as a residual has yet to be determined. Committee testing and American Cyanamid's efforts to improve the formulation will continue, he indicated. Samples of the 4% dust and 25% emulsifiable concentrate have been made available to the Insecticide Committee by American Cyanamid for field testing.

Cefro Research

Another committee research report—this one from the NPCA's Rodent Control Committee, headed by Truman Thomas of Anti-Pest Co., Shreveport, Louisiana—was given the convention on Cefro, VC 3-100, a new candidate rodent repellent developed by the Virginia Carolina Chemical Co., Richmond, Virginia. Participating in the studies underway with the liquid and granular form of Cefro are the U. S. Fish & Wildlife Service, several state agencies, and some members of the Rodent Control Committee.

"Work to date indicates Cefro may not be practical for use out of doors," Thomas said. "For inside work, particularly in warehouses and storage facilities, it shows promise of becoming an important and useful tool supplemental to the application of poison baits.

"There are situations where the repellent can be applied to protect stored materials from rodent feeding and contamination, while at the same time promoting

control by forcing rodents to feed in areas which can be baited. This is its principal value," Thomas observed.

Walter W. Dykstra, Assistant to the Chief, Branch of Predator and Rodent Control, U. S. Fish and Wildlife Service, Washington, D. C., said, in an extemporaneous talk on new rodent control developments, that he had heard favorable reports on Cefro.

Broad Anticoagulant Market

"The anticoagulant market is expanding more and more all the time," Dykstra remarked. "A few years ago, it was a \$2 or \$3 million a year business, but today the annual volume is about \$15 or \$20 million. Around 15 million pounds of anticoagulant baits are used each year in this country alone."

He revealed a new unidentified anticoagulant with a reportedly high palatability and quicker hemorrhagic action than that of most other anticoagulants currently on the market is being investigated by the government.

Dykstra added he was "disturbed" about recent reports of over-the-counter sales of thallium sulphate for rat and mouse control.

Expanding Bird Control Field

Although PCOs may be reluctant to enter the bird control field, according to George Hockenyos of Sentinel Laboratory, Springfield, Illinois, he is convinced the dollar volume of this business may eventually blossom to the size of that enjoyed in the termite control field.

"In termite control, the protective chemicals are toxic to the termites; but in bird control the protective materials must be harmless repellents," Hockenyos said. "Apparently all of the repellents now in use depend on their 'sticky' properties for their effectiveness."

Hockenyos suggested the NPCA set up a bird control committee and that it authorize the preparation of a bird control manual, similar to the "Approved Reference Procedures" for termite control. His proposals were approved by the membership.

Insect Repellent Report

Repellents—this time for insects—was the topic of Dr. Carroll N. Smith, In Charge, Entomology Research Division, Agricultural Research Service, Or-

lando, Florida. He spoke to the convention primarily on repellents for common insects which can be applied to skin or clothes, or both.

"The most effective materials recommended for application to the skin for protection against mosquitoes and biting flies are diethyltoluamide, ethyl hexanediol, dimethyl carbate, dimethyl phthalate, and Indalone," Dr. Smith related. "Diethyltoluamide is outstanding as an all-purpose repellent equalling or surpassing the repellents previously considered best against each species. It is especially resistant to loss by rubbing or wiping."

Mosquito repellents for application to the clothing are required by troops or other persons exposed to heavy mosquito attack, since mosquitoes bite readily through untreated clothing, Dr. Smith continued.

"The most effective repellents recommended for this use are butyl ethyl propanediol and diethyltoluamide," he said. "Tick repellents are most effective when applied to clothing. Recommended materials are Indalone, diethyltoluamide, dimethyl carbate, dimethyl phthalate, benzyl benzoate, undecylenic acid, *N*-propylacetanilide, and *N*-isopropylacetanilide.

"Flea repellents are also most effective when applied to the clothing, but under some conditions the skin may require treatment also. Diethyltoluamide is the most effective for both skin and clothing treatments. Other recommended clothing treatments are benzyl benzoate, undecylenic acid, and *N*-propylacetanilide. The best treatment for application to clothing for protection from chiggers is benzyl benzoate and diethyltoluamide. Other repellents mentioned above are effective while fresh, but will not withstand leaching by water as will benzyl benzoate."

Snag in Bromide Tolerances

Fred B. Jacobson, chairman of the NPCA sanitation committee scheduled to speak to the convention, was unable to attend the Louisville meeting, but his address on bromide residue problems in fumigation was read by Dr. Philip Spear, NPCA technical director.

Jacobson pointed out one of the main problems confronting the fumigator of foods, limited

by Federal residue tolerances under the Miller Bill and Pure Food and Drug Act, concerns the Government regulation specifying that the residue tolerance for a combination of two or more related pesticide chemicals for which tolerances are established is the highest individual tolerance of the two.

"Lima beans are permitted 5 ppm. of ethylene dibromide and 50 ppm. of methyl bromide, which means the combined highest permissible residue established is 50 ppm," he explained.

Jacobson identified the fumigants that may supplement each other in this way as ethylene dibromide and methyl bromide, carbon tetrachloride and ethylene dichloride, calcium cyanide and hydrogen cyanide, and ethylene oxide.

Another problem of major importance to the fumigator of food products, according to Jacobson, is the treatment of materials for which no bromide residue has been established. He said if no tolerance has been set or exemptions made, no tolerance whatsoever is permitted. That means no fumigant which would yield an inorganic bromide residue may be used.

Need Fumigation Analysis

"In initial fumigations, little residue trouble can arise, but when previous fumigations have been made at the point in question, serious problems can develop with a build-up of residues. That is why the fumigator must know how many times the commodity has been fumigated. If he can obtain no reliable case history, he will have to have an analysis made of the inorganic bromine residues to learn how frequently the lot has been fumigated, what dosages were used, and what total residues remain."

Such an analysis can be obtained in about 24 to 48 hours from a good, reputable chemical analytical laboratory. Jacobson suggested that laboratory technicians unfamiliar with the procedure might be referred by the fumigator to *The Journal of the Association of Official Agricultural Chemists (JAOAC)* Vol. 40, No. 1, pp. 189-191 (1957) "Determination of Total and Inorganic Bromide Residues in Fumigated Products" by D. A. Mapes and S. A. Shrader.

Identify Poison Control Centers

Following up on this theme of public health and safety, Howard M. Cann, M.D., director of the National Clearinghouse for Poison Control Centers, Washington, D.C., explained to NPCA members the function and operation of the network of poison control centers strung out over the country.

He said local centers distribute literature on accidental poisoning, and prepare radio and television programs to educate the public. Diagnostic information is given to local physicians to insure accurate diagnosis in suspected poison cases and to avoid incriminating an innocent but potentially poisonous substance.

PCO First Aid

Dr. William C. Adams of the Louisville Poison Control Center accented Dr. Cann's discussion with an address on first aid for PCOs. He emphasized the need for prompt first aid action in serious cases when medical assistance is not immediately available.

"If a PCO gets a chemical solution in his eye while on the job, he should not waste time calling the doctor for directions," Dr. Adams advised. "Instead, the operator should wash the eye out immediately with any liquid available, even a beverage, if necessary. Then the doctor can be called. This holds true when a chemical poison comes in contact

with the serviceman's skin. He should wash it off before he does anything else. And the PCO must be certain any clothing impregnated with chemical is not worn over and over again."

Following Dr. Adams' talk, the NPCA distributed re-prints of "First Aid Measures for Poisoning," a report by the American Medical Association Committee on Toxicology published in the October 12, 1957 issue of the *Journal of the American Medical Association*, Vol. 165, No. 6, pp. 686-687.

Safety and Organic Phosphates

In a talk on organic phosphate insecticides and their safe use by PCOs, Dr. Lloyd W. Hazelton of Hazelton Laboratories, Falls Church, Virginia, reviewed chemical components of organic phosphates and analyzed safety hazards involved in their handling.

One of the chief difficulties with organic phosphate insecticides, safety-wise, he feels, is that they may enter the body by all normal routes: by mouth, inhalation, or skin contact. Although Diazinon and malathion are not sufficiently volatile to create trouble by inhalation, very small particles, such as aerosols, can be inhaled and create dangerous complications.

"Penetration of skin by organic phosphate insecticides is very rapid and usually unnoticed, since signs of irritation are absent," Dr. Hazelton observed.



International breakfast. These 14 NPCA Convention delegates from representative countries outside the U.S. breakfasted together one morning during the meeting. Seated, left to right, are **A. Vercival**, A. Vercival & Co., Port Arthur, Canada; **Mrs. C. J. Harris**, Harris's Pest Control, Hamilton, Bermuda; **G. Noy**, A. Vercival & Co., Port Arthur, Canada; and **Jack Rudick**, Western Exterminating Co., Montreal, Canada, who officially represented all countries outside the U.S. Standing left to right, are **Harold Corbett**, Corbett Pest Control Service, St. Thomas, Canada; **C. J. Harris**, Harris's Pest Control, Hamilton, Bermuda; **Jerry Parent**, National Fumigating Corp., Windsor, Canada; **E. L. Forde**, E. L. Forde, Ltd., Honolulu Hawaii; **E. L. Moore**, Service Anti-Insecto, Caracas, Venezuela; **Frank Bonney**, H. P. C. Pty. Ltd., Perth, Western Australia; **C. W. Anderson**, Australian Wheat Board, Glenelg, Australia; **Dr. Herbert Rauscher**, Frankfurt Am Main, Germany; **Richie Davis**, Casa y Jardin S.A., Mexico City, and **Dr. Harold Ellis**, Bogota, Columbia. The group held its breakfast in the coffee shop of the Brown Hotel.



"Eyes and skin may be irritated by some formulations, particularly emulsions, but this is temporary and confined to a local area.

"The PCO's knowledge that on an acute basis Diazinon is more toxic than malathion but less toxic than parathion does not mean he can be more careless with one than the other," Dr. Hazelton warned. "Each must be handled safely because the hazard is based not only on their acute toxicity but on the conditions of use. Careless application of any organic phosphate insecticide can cause serious trouble."

He also pointed up the necessity for avoiding the use of any high pressure sprayer or other similar applicator when it is used to apply organic phosphate insecticide mists, whether liquid or dust. Precaution also is needed to assure large particles of liquid or the dust do not get on the skin and thus be absorbed, he said.

Two segments of the four-day convention were devoted to business topics. One featured a four-man panel in a discussion of contractual obligations.

Need for Contract

Establishing a similarity between the practice of a small PCO and that of a country doctor, Fred Switzer, Executive Secretary of California Pest Control Operators, Inc., reported many operators feel size of their companies makes the use of contracts unnecessary.

"It's easy to go along in a friendly manner and require nothing in writing," Switzer observed, "but you must remember a signed contract is your only protection. And probably no other group of businessmen has greater need of properly written and signed contracts than that in the pest control industry. We have little that is tangible to offer our customers for their

money, little they can later exhibit proudly to their friends. And often our services are needed when the customer is least inclined to spend any money. Unfortunately, some people feel justified in not paying for something which is merely a necessity and not of their own choosing."

"A valid contract requires consideration by both parties, and in the case of service contracts such as ours, a complete explanation of our performance should be stated," the California official claimed. "If time and material are involved, it may be necessary to explain the hour rate being charged as well as the type and amount of material to be used, and the method of application. The more comprehensive our contracts, the less likely we are to run into misunderstandings."

Seeks Model Agreement Form

Joe Mooney of Columbus Pest Control, Columbus, Ohio, emphasized the need for model agreement forms within the industry, forms prepared in advance to contain all essential ingredients of a valid contract. They become binding contracts when completed and terms are agreed to between the PCO and his customer.

He suggested a simple contract form containing the name of the customer, name of the pest control firm, time and place for service to be performed, nature and scope of service, contract price, and method of payment. Other provisions that might be included would be an option to renew the contract, an option to terminate it, guarantee terms, limitations on liability, rights and responsibilities of both parties, and space for any special provisions that may be in order.

Danger in Loose Credit

Credit and risks involved in the buy-now-pay-later way of doing business were discussed by Ward Combs, Presto-X-Company, Omaha, Nebraska.

"Bad credit experience resulting from doing business with larger, well-established firms is very small," Combs said. "Our real concern involves the extension of credit to smaller companies, such as neighborhood grocers or restaurant operators, and new businesses which make up the bulk of the industry's \$5 and \$15 contracts.

32 Suppliers Exhibited. Delegates who visited every booth were eligible for the half-dozen cash prizes awarded by the NPCA to stimulate booth visitations. Winner of the top \$100 prize was **E. P. Mace** of Tulsa, Okla. He's shown in photo (1) being congratulated by national convention chairman **Benschoter**. (2) Velsicol Chemical Corp. gave every delegate an opportunity to be photographed with "Miss Chlordane." Company ad manager **Larry Carls** here snaps the evidence for one PCO to take home. (3) Shell Chemical Corp. displayed a 3-foot termite model it called "Mr. T." Each PCO was given a chance to win it. Lucky person was Bob Feuerstein of Long Island City, N.Y. (4) **Dr. John Lembach** of Residex Corp. awarded a Beagle puppy in another drawing. Winner was Mrs. Esther Ratner of Atlantic City. Two other representative exhibitors were (5) **Norman Liberman** (left) of Idico Products Co.; and (6) **Samuel A. Grossman** of Aegis Laboratories, Chicago.

"For the past several months, you have probably been experiencing the extension of many 30-day payment accounts to 60 days, which means your accounts receivable become a 60-day asset in place of a 30-day asset," Combs related. "In such instances as these, which are economic, you are called upon or should be alerted to re-evaluate each account that tends to extend its period of credit."

Contractual Liabilities

Do liabilities exist for the PCO if he has a "Hold Harmless Clause" in his service contract? Samuel H. Ritt, Vogel-Ritt, Inc., Philadelphia, Pa., told the convention such clauses have been drafted in numerous ways, and some create no greater liability to the operator than would be imposed by law in the absence of the clause. Yet others may impose definite liabilities.

"Liability insurance may be secured to include this," Ritt said, "either by obtaining coverage for each contract having such a clause, or by carrying blanket coverage."

Ritt recommended that operators exercise caution in wording all communications addressed to the public that they use in preparing the service contract itself. Language guaranteeing something that cannot be delivered or accomplished should not be used in advertising, etc. One should not state as a fact that which is known to be not only questionable, but untrue in the light of industry experience, yet, may seem probable and possible to one not possessing the industry's knowledge. The average client may rely on such a statement when entering into a contract and later be successful in having it considered as part of the contract. He referred to such newspaper advertising terms as "Termites Exterminated, Unconditional Guarantee."

Pricing and Cost Consciousness

The need for basic cost consciousness in pricing was underscored by Fred New of Ragan Exterminators, Inc., Kansas City, Mo.

"We must keep our records accurately, remain constantly aware of our true costs, and be able to know how to price our work at such a level as will provide us a reasonable margin of

profit after the payment of all operating costs and expenses," New said. "To do this, our prices must be based on true and accurate costs obtained from our records by sound accounting principles. It cannot be done by haphazard pricing or pricing based on guesswork."

3 Needs in Written Records

In tune with talks on pricing and basic costs, R. B. Beckett of Redd Pest Control, Jackson, Mississippi, outlined the need for written business records and defined three basic qualities that must be present in these records: accuracy, adequacy, and coherency.

"Accuracy has to start right with the serviceman in the completion of his work reports and his service receipts," Beckett said. "Yet records must be pertinent. They may be 100% accurate and adequate, or can be useless if they merely represent a collection of statistics without a definite pattern or need and give management nothing but a headache and tired eyes."

"Where multiple services are being sold, the first step is to departmentalize operations so revenue and cost can be allocated to proper departments. Only in that way can the operator have visual knowledge of which operations are functioning at a loss and which are in the black. A service must show a profit. A master operating statement, consolidating all departmental statements, will show the over-all complete operation."

To determine how much it costs to produce one dollar of revenue, as well as the percentage of individual expense items to the revenue dollar, it is necessary to set up a percentage analysis of each element of expense to income, Beckett remarked.

"This gives a better picture of operations than just a dollar and cents operating statement," Beckett said. "Increased volume does not always produce a proportionate increase in net profits. As income volume goes up, certain expense figures may increase at a greatly accelerated pace. Sometimes a point of diminishing returns is reached, where the cost dollar is producing less and less revenue."

"For example, one operator might have an annual revenue of



PCO safety was the subject of talks given by, left to right, seated, **Dr. William C. Adams**, Louisville, Ky., Poison Control Center; **Dr. Howard Cann**, Chief, National Clearinghouse for Poison Control Centers, Washington, D.C., and **Dr. Lloyd W. Hazelton**, Hazelton Laboratories, Falls Church, Virginia. **Dr. Philip J. Spear**, NPCA Technical Director, standing, presided over this session on safety practices.



Contractual responsibilities was the topic assigned to the four-man panel shown above with their moderator, **Herman L. Felton**, left, Getz Exterminators, Inc., St. Louis, Missouri. Speaking on the panel were **Joe Mooney**, seated, Columbus Pest Control, Columbus, Ohio, and, left to right, after Felton, **Samuel Ritt**, Vogel-Ritt, Inc., Philadelphia, Pennsylvania; **Fred Switzer**, California PCOs Inc., Los Angeles, and **Ward Combs** Presto-X-Company, which headquarters in Omaha, Nebraska.



Business topics were discussed one day by **Fred New**, seated, Ragan Exterminators, Kansas City, Missouri; and left to right around him, **Professor Robert Schultz**, Wittenberg College, Springfield, Ohio; and **R. B. Beckett**, Redd Pest Control, Jackson, Mississippi. Presiding was **E. H. Purcell**, right, of E. H. Purcell & Co., Ft. Wayne, Indiana.

\$300,000 and an acquisition cost of 94%, which produces a net profit of \$18,000. Another operator with an annual revenue of \$400,000 has an acquisition cost of 96%, or a net profit of \$16,000. In the process of acquiring the additional \$100,000 in revenue, the second operator has absorbed greatly increased costs, which did not produce their fair share of revenue."

Monthly cost analysis reports



Termite control research was discussed at the convention by Dr. Walter Ebeling, left, of the Department of Entomology, University of California, Los Angeles; and Dr. John V. Osmun, head of the Department of Entomology, Purdue University, Lafayette, Indiana. A report on their talks will be carried in the TERMITES section of the December Issue.

can forewarn management when it is approaching the point of diminishing returns, Beckett said.

Beckett also urged the adoption of model administrative standards. Standardized general records would, first, lead to more efficiency through uniformity of accounting within the organization, Beckett claims, while interchange of ideas on accounting and general records procedure among members would make it practical for the industry to retain professional business engineers who could give periodic reports on industry business as a whole. Beckett feels this would give operators a baseline with which to compare cost of their operations.

Necessity of human relations in a business were set forth by Professor Robert Schultz of Wittenberg College, Springfield, Ohio.

NPCA Votes Group Insurance

At its business sessions, the NPCA membership took two major steps during the Louisville meeting. Already explained at the beginning of this report is their action which approved adoption of an acceptable certification program for soil pretreatment. The second development was membership endorsement of a group insurance proposal which would provide coverage of full-time NPCA-member employees in every state except Texas where state law prohibits participation in such a program.

Like the certification idea, details of the insurance proposition are yet to be worked out, but three men are to work with ex-

pert legal counsel to establish the trust agreement by which the program will be administered. The three NPCAers who will do this work are F. E. Bohman, the Birchard System, Hartford, Conn.; Justin Simon, General Exterminating, New York City; and A. E. Ritt, Vogel-Ritt, Philadelphia. B. W. Eldredge, Waltham (Mass.) Chemical Co., will serve as an alternate.

The insurance program will be independent of the NPCA, but the association is lending funds to make the plan a reality and to promote its benefits in order to get it started. Once established, the group insurance operation will be self-supporting.

In other action, the association endorsed the Second International Congress of Pest Control Operators and indicated it would appoint an official delegate. The ICPCO will be held in Vienna, Austria, May 14-18 and details of a special 31-day conducted excursion are now being formulated. (See PC, Oct. '57, pg. 82b.)

J. C. Redd Is New President

Delegates were unanimous in their choice of officers to serve the NPCA during its fiscal 1957-58 year. Last year's executive vice-president, J. C. Redd of Redd Pest Control Company in Jackson, Mississippi, was elevated to become president for a period in the association's history which may be one of its most momentous when measured in terms of accomplishments.

New executive vice-president is Wayne K. Davis, Ailing House

Termite Inspection Bureau, Oakland, California, and the elected secretary-treasurer now is Paul J. McMahon, of McMahon Brothers, Inc., of Binghamton, New York.

Members of the new NPCA Executive Board, which acts in behalf of the association's larger board of directors between regularly scheduled meetings, are George L. Hockenyos, Sentinel Laboratory, Springfield, Illinois; Harold Schnorrenberg, Dead Shot Chemical Co., Tulsa, Okla.; I. B. Carnecross, Syracuse Chemical Co., Syracuse, N. Y.; and immediate NPCA past-president Myron W. Smith, Hill-Smith Systems, Memphis, Tenn.

The ladies, too, held an election to pick the PCO-wife who will serve the Lady Bugs as their chairman in the coming year. Mrs. J. Robert Byrne, wife of the owner of Apex Exterminating Company in Washington, D. C., was the choice of ladies who joined their husbands for the Louisville meeting.

James V. Benschoter, Ben-E-Lene Co., Toledo, Ohio, served as chairman for this 24th annual convention. Local chairman was the NPCA's 13th president, J. Harvey Sturgeon, Sturgeon Pest Control, Louisville.

Next year, the association will hold its annual convention at the Statler Hotel in Washington, D. C., to celebrate its silver anniversary. The NPCA's first meeting was held in the nation's capitol in 1933.



New NPCA officers. Myron W. Smith, left, of Hill-Smith Systems, Memphis, Tennessee, retiring president, shakes hands with incoming president J. C. Redd, Redd Pest Control, Jackson, Mississippi, shortly after Redd's election. With Redd, left and right, are Wayne K. Davis, Ailing House Termite Inspection Bureau, Oakland, California, and Paul J. McMahon of McMahon Brothers, Inc. Binghamton, New York. Redd was executive vice-president for fiscal 1956-57.

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P.M.P. Concentrate

The new anti-coagulant concentrate containing PMP, which produced spectacular control of Norway rats, Roof rats and house mice in field tests conducted by the U. S. Fish and Wildlife Service, is now available for general use. Inland Chemical offers this fabulous concentrate in 100 lb. drums at only \$1.25 lb.—50 lb. drums at \$1.40 lb.—25 lb. drums at \$1.45 lb. Order now.

Universal PMP Concentrate Here is a product that can be used to prepare liquid baits at the lowest possible cost per quart of bait. It can also be used to prepare cereal bait as needed for on-the-job formulations. Packed in 300 gram bottles, (makes 100 quarts of liquid bait) it is used at the rate of 1 teaspoon per quart of water. Priced at only \$8.50 per jar. Prepaid when two or more jars are ordered. This is the only universal anti-coagulant concentrate on the market!

PMP Water Soluble This formulation produced exceptional results in U.S. Fish and Wildlife Service field tests. Available in bulk—4 tablespoons per quart, at \$1.25 lb. in 25 lb. containers. Also packaged in 1 $\frac{3}{4}$ oz. key-opening tin cans. Each can makes 1 quart of liquid bait.

100 LB.

50 LB.

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Sporadic good housekeeping programs at industrial plants and management's lack of interest in correcting conditions has developed to the point where

Low Paid In-Plant Sanitation Worker Is Hindrance to PCO's Control Efforts

by **STEPHEN A. RITT**

Vogel-Ritt, Inc.
Philadelphia, Pennsylvania

Probably the biggest single objection the pest control operator has had to overcome in selling a preventative pest control maintenance program to industry is the difficulty in being able to pinpoint the results on the client's profit and loss statement. Basically this is also the problem today in the field of sanitation. Too few of management are progressive enough to consider the positive benefits of an integrated and coordinated sanitation program.

The past fifteen years has shown a tremendous increase in the overall productivity of the American worker. While it is true dollar wages have risen steadily, most industries have been able to counteract this by labor saving practices, new materials, and investment in modern capital equipment. PCOs have met the problem of rising costs and wages through use of new insecticides and rodenticides, more acceptable and longer lasting equipment, and better trained servicemen. These factors have helped maintain earnings in an industry unable to pass increases immediately on to the customer.

The plight of the sanitation worker is not the same. While his wage has more than doubled in the past 15 years, his productivity has in most cases remained fairly constant. This has meant a percentage increase in the cost of cleaning to industry. Management, in its quest for greater sales and profits, has looked on sanitation as merely another overhead item which cannot be

too rigidly controlled, or the results too accurately measured. Consequently, the majority of industry is operating today with less than minimum sanitation standards.

Low Stature of Sanitation Worker

Most firms consider the sanitation worker as the lowest in the organization. Others use the department to retain old production workers who no longer are useful or able on the line. Few firms have been able to install a coordinated program which is both cost saving and productive. The sanitation dollar is a small one in the overall picture, and little effort has been made to study it. It is only in recent years that time studies have been made and standards set by which management can accurately forecast the amount of time necessary to accomplish a given cleaning task. Training is practically non-existent. A man is hired, given a broom or a mop, and put to work. Power sweepers, industrial vacuums, wet and dry pick-ups, though available, are still in their infancy as far as industrial use is concerned.

Complications for PCO

These factors have increased the headaches of the PCO. His control measures are made more difficult by having to perform his duties in areas where cleaning is sub-standard and which thus provide a welcome environment for insects and rodents. Haphazard storage facilities, discarding of obsolete equipment by shoving

it into a corner, and other similar practices have made many areas inaccessible to the trained serviceman except with a great deal of lost time and effort. Not only does this make control more difficult, but the client must spend more money to get the job done. Most food processors whose products have been cited by the Food and Drug Administration have been plagued by such poor housekeeping it is remarkable any pest control at all could be accomplished. Yet, it is usually the PCO who is blamed for the trouble.

In order to overcome these problems and also to be of further service to the client, the PCO should be prepared to help management keep clean. While it is true only a very few operators are qualified to render scientific sanitation aid, there is much which can be done. The progressive PCO knows what conditions are most conducive to insects and rodents. He is in a position to recommend changes which must accompany good pest control. A pest control program will be only as good as the cooperation given it by management. It is a simple process to move storage away from the walls and to have the areas where walls and floors meet painted white. It is not very difficult to suggest obsolete and unused equipment be stored separately or discarded completely. Yet, with proper cooperation, these matters can completely change the pest control situation in a given plant. At the same time the operator is building himself up as a professional and assuring himself of a satisfied, well sold account. Not only is the problem being taken care of, but the account becomes more profitable through additional service by the PCO. The operator may even make periodic inspections of the plant to assure continuance and progress of the program.

Value in a Consultant

At times it may come into the province of the PCO to recommend or work with a sanitation

PESTMASTER*

methyl bromide

cuts fumigation costs

50%

FOR "FORCED DISTRIBUTION" OR "RECIRCULATION" FUMIGATION OF BULK GRAIN in tanks, bins or other types of flat storage, Pestmaster Methyl Bromide with forced air circulation is an ideal fumigant. Methyl Bromide will cut actual fumigation costs as much as 50% compared with liquid grain fumigants. It is effective, profitable and approved for most types of grains and foodstuffs.

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We are interested in expanding our rapidly growing termite and wood-boring insect control operations through franchise arrangements.

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More than your present volume, we are interested in integrity, progressiveness, ability, and your sincere desire for greater earnings and security. Of primary importance — we solicit inquiries **only** from persons or organizations of unquestionable reliability.

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(Division of
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consultant. The consultant can prove to be very important to industry. His background and training put him in the position to solve problems which the PCO should not begin to consider. A consultant is familiar with work methods, job training and super-

In December, watch for

•
**Complete Index to all news stories,
feature articles, feature columns,
and editorials that appeared in
PEST CONTROL during 1957.**

•
Two-Foot Book Shelf, PCO's Bibliography
By Professor J. J. Davis
Purdue University

•
**Full details on Termite Sessions at
NPCA Convention in Louisville.**

•
How Travel Affects Incentive Pay Plan
by Max Carasso, Walter Blank.

•
**Plus other features, news,
and photos**

vision, new materials and equipment, etc. He is usually able to raise the sanitation level and increase the workers' productivity without raising the costs proportionately. At the same time he is making the PCO's control program more easily attainable. By working with the consultant the PCO can aid him in determining the proper pest control specifications for any given situation. The two working in conjunction can maintain a positive, solid program which will prove an asset to the client.

Regardless of whether he is working alone or in conjunction with others, the progressive PCO must be prepared to meet sanitation problems in connection with his programs. Increased competition and the emergence of many technically trained men into the pest control field has made this a must. If the PCO wishes to hold key accounts and continue to grow, he is required to place himself on a level which will create confidence in his recommendations and will cement his relationship with the account. If he does not, it is only a matter of time until a competitor will.

NEW entirely different PURPLE DEATH

**kills rats and mice
gives you up to**

52% PROFIT!

**SELL IT IN YOUR RETAIL STORE
USE IT IN SERVICE OPERATION!**



- 1 good feeding assures certain kill
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42 feeding stations - \$2.84

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Only \$42⁰⁰ Per Drum
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Now Donco offers pest control operators a new, ready-to-use PMP cereal bait! A special report on field trials of PMP baits, published by the U. S. Fish and Wildlife Service, states:

"The results of the area wide campaign were EXCELLENT! PMP food baits containing a concentration of 0.03% of the calcium salt of 2-Isovaleryl-1, 3-Indandione effectively control roof rats, Norway rats, house mice."

PMP Baits are Resistant to Insect Infestation

Write, wire or phone:



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Dry Meal Bait also Available
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When Writing to Advertisers Please Mention PEST CONTROL

TERMITES and other enemies of wood

Pressure-Treated Wood Tops Shields In Home Mechanical Termite Control

by **HENRY R. ISHERWOOD**

The Antimite Co., St. Louis, Missouri

Pressure-treated wood in the substructure has four distinct advantages over metal shields used for mechanical termite control in homes constructed with poured concrete foundations.

A properly installed metal shield protects wood on top of foundation walls against subterranean termites and forces them into the open. Pressure-treated wood in the substructure of a new home also forces termites into the open, and at the same time provides protection both on foundation walls and in the substructure against decay, powder post beetles, wood borers, and carpenter ants.

Most important, however, is the protection pressure-treating affords the mud sill, life artery of the dwelling. When damaged, a mud sill is expensive to replace.

Excessive termite destruction to a mud sill causes the sill to collapse. Subsequent damage to or settling of the framework and development of cracks in walls and ceilings of the upper structure will require costly repairs.

To get around a shield between the mud sill and foundation, termites use soil to fill up space under the shield, then build their tube over this fill and on top of the shield to reach untreated wood in the substructure. Regular reinspections can prevent this.

However, just as termites may use a soil fill to skirt a shield, they can build their tubes over treated lumber to reach untreated surfaces in their quest for food.

Because a termite shield furnishes no protection in its usual design against termite attack originating in or below a "built-in" flower planter, termites can pass through mortar joints and air spaces of residences with con-

crete block foundations to attack untreated lumber in the substructure.

Similarly, termites can work through mortar joints and air spaces between 4"x8"x16" precast concrete blocks widely used in place of a continuously poured and reinforced capping. Use of such precast concrete capping blocks does not meet F.H.A. requirements.

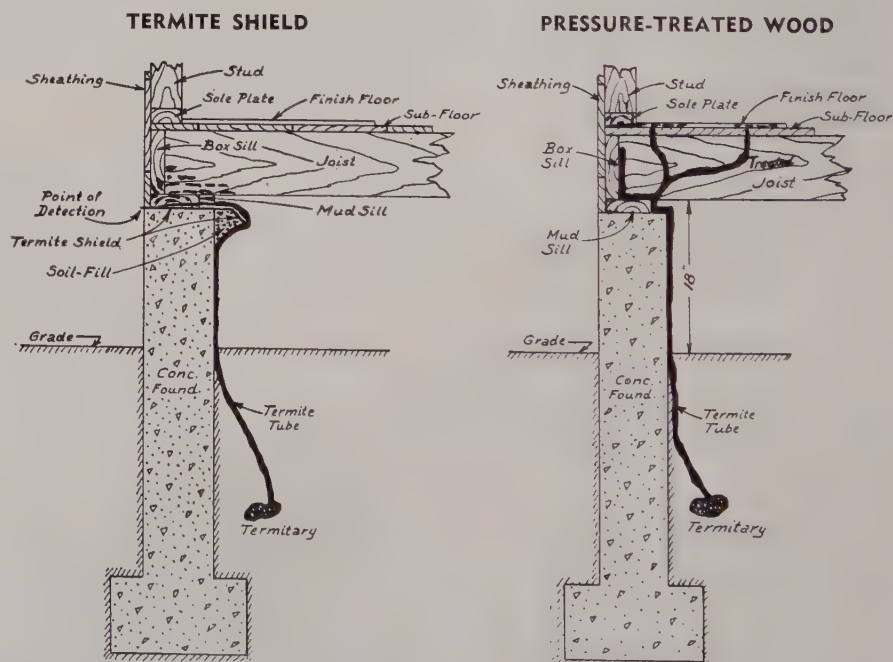
When members of the substructure are pressure-treated and the foundation is of concrete block construction, termites route their tubes through voids of blocks and penetrate mortar joints between precast capping blocks.

Yet treated timbers in the substructure force attacking insects to expose themselves when they advance onto untreated surfaces.

Since the concrete foundation is the first step in building, and the pouring of concrete porch slab is one of the last, neither the over-the-top termite shield in its usual design nor the "side shield" will be effective adjacent to a dirt fill concrete porch. Old concrete will never bond tightly enough with new concrete to prevent termite passage and termites can find ready access to untreated wood through the junction of new and old concrete.

Most common failure of the side shield is that it moves away from the wall between fastenings and termites can build their tubes between the concrete beam and back of the shield.

Defective or broken seams cause most failures of shield installations. If malleted seams are not tight, termites may work through. Lap and flat seams often



Shields between concrete foundation walls and the mud sill provide little protection against termites, as illustrated in the diagram above. Once termites extend their tubes up foundation to the shield, pack soil between outer extension of the shield and foundation wall, and build their tube over their soil fill and shield, they are free to attack untreated wood in the substructure.

Pressure-treated wood safeguards the substructure of a building against decay and wood-destroying insects. Illustration shows that termites in search of food can route their tubes up the foundation wall and over treated joists to reach untreated studs or wood in the subfloor or finish floor. Writer Isherwood says only regular inspection and soil treatment are dependable weapons.

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WHEN TERMITES ATTACK, give your customer fast, long-lasting control with dieldrin . . . the termiticide that thousands of pest control operators have found tops for reliability.

Dieldrin forms a deadly barrier that makes short work of termites

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fail due to careless soldering. Soldered seams also can be broken by an up-and-down movement of the foundation, resulting from hydration or dehydration of certain soils or by horizontal contraction or expansion of the metal.

It should be stressed, of course, that neither method—shields nor pressure-treated wood—insures ironclad protection against subterranean termites, since these wood attackers live in the ground and can be controlled only by soil

treatment and regular inspections. But in terms of mechanical control, the merits of pressure-treated wood in the substructure should be evident.

Honolulu Termites

Both drywood and subterranean termites are extensively prevalent in Honolulu, Hawaii, with very few structures being entirely free from infestations.

Termites are found not only in structures themselves, but also

in furniture and fabrics. The insects swarm continuously infesting such items as woolen suiting bolts in tailor shops and the paper and type cases in print shops.

Climatic conditions and the prevalence of ornamental plants about residences are conducive to extensive damage.

Applauds Redd Termite Views

(from page 6)

application but also in new home construction methods. Then there is another statement by Mr. Redd, which every TO should memorize and follow, namely that "TOs must be able to diagnose problems not only on the basis of termite control activities conventional 20 years ago, but also on the basis of modern day home designs. This condition has made it impossible to draw up a set of standard procedures for termite control today." He then adds that it is necessary to recommend control measures on the basis of each individual structure. From the beginning to the end it is a most wholesome article, written by a TO, who proves he has carefully studied the problems of modern termite control, accepts present construction methods, and adapts his operations to those new conditions.

Mr. Redd seems to have grasped the idea after careful study that modern termite control requires highly specialized knowledge of the application of basic principles in the building profession, old and modern, and experience in the application of this knowledge when confronted with new or very complex problems. By continuously studying new construction methods, the alert TO can help to take the guess work out of modern termite control. The phraseology of the article also shows that Mr. Redd apparently has also a good judgment in making public statements.

This article stands out like a clean towel in a railroad round house.

Alfred Zimmern

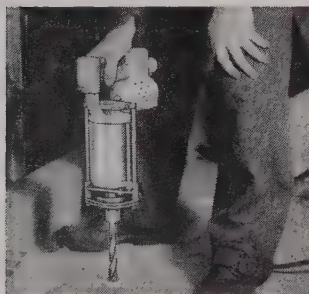
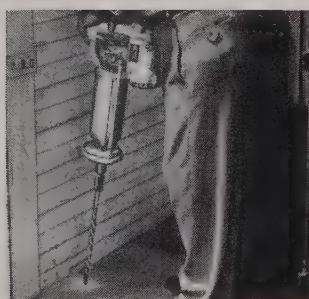
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SYNTRON "Electromagnetic" **ELECTRIC HAMMER DRILLS**



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for fast, easy drilling in concrete, masonry, etc.



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SYNTRON Electric Hammer Drills are designed for fast, easy drilling in concrete, masonry and other materials encountered in pest control work. SYNTRON'S Exclusive automatic rotation of drill bits provides ease of handling in any drilling position.

Constructed for long, dependable service, employing the electromagnetic principle, they will maintain their efficiency with a minimum of maintenance. Available in sizes from 5/8" to 2" diameter holes.

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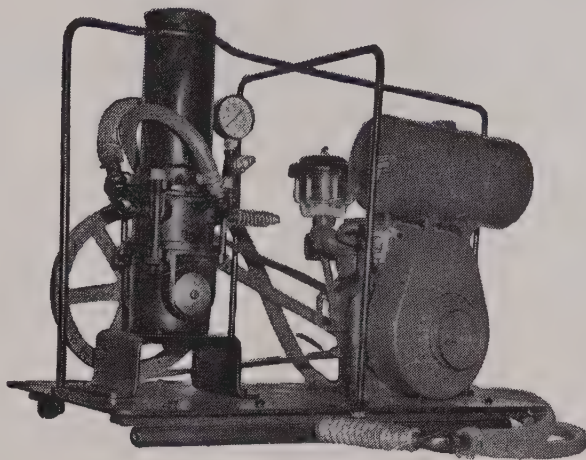
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A NEW Portable Spraying & Termite Treating Unit With A Pump That Does Away With Your Pumpaches

NEW DIAPHRAGM PUMP Eliminates expensive break-downs, can be repaired on the job in less than ten minutes with extra kit which comes with each unit. Unit comes fully equipped with 100 Ft. $\frac{3}{8}$ " I. D. chemical hose & Accessories. Wt. Approx. 145 lbs.

Complete line of Electric and Gasoline Powered Portable Sprayers, Accessories & Tools, etc.



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Portable unit shown handles abrasive & corrosive chemicals used in termite, pest, weed & grass control applications without damage to pump's pumping parts. Capacity 6 gal. per minute, pressure adjustable to 175 P.S.I. Agitates 55 gal. steel drum of solution thoroughly.

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The Rats went to College...

and played an unwilling part
in perfecting anticoagulants for
use against human disease.

Rats were even unhappier when
the University scientists developed
warfarin, the pioneer anticoagulant
rodenticide.



warfarin was discovered in the laboratories of the University of Wisconsin, developed by the Wisconsin Alumni Research Foundation, and proven in use by the P.C.O. It is now the "professional" technique for ridding premises of rats and mice. Depend upon warfarin baits... be SURE of results!



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USDA Endorsement Policy

To clarify its policy of not endorsing specific commercial pesticides, the U. S. Department of Agriculture has proposed an amendment to regulations for labeling such products.

Under the proposed change, USDA authorities would consider a pesticide misbranded if its label carried "any statement directly or indirectly implying that an economic poison or device, or any ingredient or constituent thereof, or combination of ingredients, is recommended or endorsed by any agency of the Federal Government."

Target of the USDA's action, an Agricultural Research Service spokesman said, are suppliers who employ such expressions in their advertising as "Formula Recommended by the United States Department of Agriculture," or "Active Ingredients Recommended by the United States Department of Agriculture."

Claims of this kind have been wrongly interpreted to mean the product itself is USDA-endorsed, Government authorities point out in their argument for the proposed change.

Georgia PCOs Elect Annis

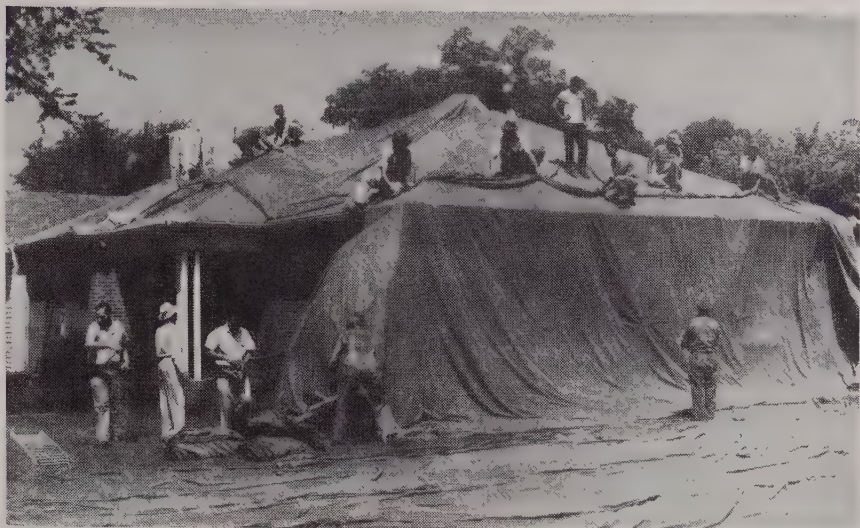
L. V. Annis of L. V. Annis Pest Control, Augusta, Georgia, has been elected president of the Georgia Pest Control Association, Inc. Other new officers selected recently include E. J. Karst, Jr., No-Vex of Albany, vice president; and H. L. Dorris, Orkin Exterminating Co., Valdosta, secretary-treasurer.

Plan NC Pesticide School

Date for the 1958 North Carolina Pesticide School at North Carolina State College, Raleigh, is January 21-22. H. Eldon Scott, chairman of the Pesticide School, said meetings will be held in the College Union Building.

NC PCO Short Course Set

The 1958 North Carolina PCO Short Course will be held February 4-6 at the Student Union Building, North Carolina State College, Raleigh, according to Miss Delia Copley, secretary of the North Carolina Pest Control Association. Further details will be announced later.



A free drywood termite fumigation was given the owner of the residence pictured above by Oklahoma PCA members participating in a cooperative control effort. Pictured, left to right on the roof of the Guthrie home that was the scene of the state's first drywood termite infestation, are a State Department of Agriculture representative and PCOs Tom Graham, William Schnorrenberg, Harold Schnorrenberg, Robert Schnorrenberg, W. A. McCabe, Roy Reese, and Dewey Bedingfield, all of Oklahoma City except William Schnorrenberg, who is from Tulsa. On the ground are Pat Mace, Henry Cohen, Ted Pinkston, Wayne Schnorrenberg, and A. M. McIntosh. Each is from Tulsa except Schnorrenberg. He is from Oklahoma City.

Okla. PCO Assn. Halts State's First Drywood Termite Infestation Gratis

Oklahoma Pest Control Association members recently stamped out the state's first infestation of drywood termites in a dramatic large-scale control effort that attracted statewide radio, television, and newspaper publicity.

More than 25 PCOs representing firms in Oklahoma City, Bartlesville, Stillwater, Guthrie, and Tulsa contributed their services free of charge to help fumigate the home, a medium-priced brick residence that is located in Guthrie.

"We had a wonderful time in doing the work," PCO Tom Graham, Graham Pest Control and Garden Clinic, Oklahoma City, said. "I feel we have the best state association in the country when it comes to pitching in and enjoying each other's company."

Graham said it took two days from start to finish for the fumigation, which required 150 pounds of methyl bromide and 2,000 pounds of tarps.

Initial discovery of the infestation was made by Fred Sills, Guthrie Termite and Pest Control, during a house call last June to investigate another insect

problem. He called in Clyde Bower, head of the Entomology and Plant Industry Division of the State Board of Agriculture, who sent termite specimens to Washington, D. C. Federal authorities verified Bower's and Sills' suspicions that the invaders were of the drywood species.

It was theorized the termites were either brought into the state in lumber used for building the home in 1946, or they had infested furniture taken into the home by a previous occupant and left behind when he moved. Bower said it was evident the pests had been in the residence "a good while."

Due to the high cost and unfamiliar technical complications likely to confront the firm undertaking the fumigation, Harold Schnorrenberg, Dead Shot Chemical Co., suggested Oklahoma association members tackle the job jointly.

"Harold Schnorrenberg arranged for the publicity, Orkin furnished the tarps, and the rest of us just pitched in and did the heavy work," Graham said. "When we got through, we tore up the floors to see what kind of kill we got, and it was perfect."

MB Fumigation of Nuts Approved

Federal regulatory agencies now permit methyl bromide fumigation of stored raw edible nuts by all common application methods, including boxcars, under tarpaulins, fumigation chambers, in bins, or in warehouses.

A tolerance of 200 parts per million for inorganic residues has been established for hickory nuts, butternuts, walnuts, peanuts, pecans, Brazil nuts, bush nuts, almonds, chestnuts, hazelnuts, cashew nuts, and filberts. There must be a 72-hour aeration period between the time of fumigation and when the nuts move to market.

Fumigation authorities feel the 200 tolerance should be adequate for normal storage conditions and normal storage periods.

Modify Chloropicrin Tolerance

Chloropicrin has been exempted by the Pure Food & Drug Administration from the requirements of a residue tolerance when it is employed as a fumigant for barley, buckwheat, corn, oats,



"Masterliner," a zip-in, vest-like jacket-liner of Dacron fiberfill, has been designed by Riverside Manufacturing Co. as a companion piece for Riverside's new Dacron-viscose winter uniform jacket. The liner reportedly weighs about five ounces. It is available with the purchase of a Riverside Masterbuilt jacket. Further details can be obtained by writing the manufacturer in Moultrie, Ga.

rice, rye, grain sorghum, or wheat.

Publish FDA Tolerances

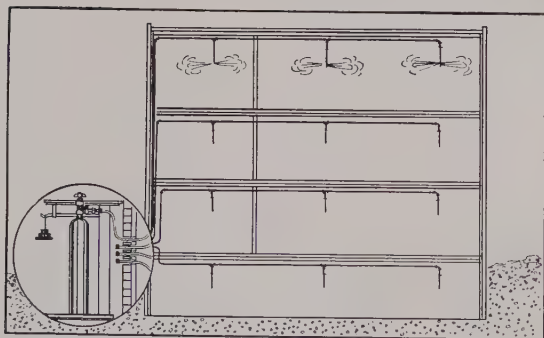
A complete list of Pure Food and Drug Administration tolerances, established under the Miller Bill up through April 30, 1957, for pesticide residues on crops is available from the National Agricultural Chemicals Association. Requests for free copies should be addressed to the NACA headquarters at 1145 19th St., N. W., Washington 6, D. C.

Growth By Charleston Rubber

The Charleston Rubber Company, Charleston, South Carolina, which will celebrate its 10th year in business in 1958, has grown in size from four skilled workers employed in a 4,000 square foot plant in 1948 to 75 persons who today require more than 65,000 square feet in seven buildings.

According to William J. Prohaska, president, gross sales for Charleston Rubber in 1957 are expected to exceed \$1 million. The company has distributors in 48 states, Canada, and Mexico, and is a leading supplier of rubber protective gloves.

KILLS RATS AND MICE OVERNIGHT WITH AEROSOL LARVACIDE THROUGH PERMANENT PIPING SYSTEM



Convenient, sure-kill fumigation. Aerosol LARVACIDE applied into any part of a building from the outside by means of piping system. No exposure. Simply open valve on cylinder.

Economical, too. Piping system parts for 200 x 40 foot warehouse cost only about \$23.00. Installation time: about two hours.



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You stop rodent damage for your industrial customer overnight... conveniently, quickly and economically. Just 1/4 lb. of Aerosol LARVACIDE fumigates 1,000 cubic feet, driving rats out into open floor to die... no carcass nuisance... and it kills mice easier still. Later treatment, when necessary, is done at minimum cost.

LARVACIDE is available as Aerosol in cylinders... as flat without pressure in cylinders... and in 1 lb. bottles. Make sure your serviceman carries a case of bottles in his car at all times for immediate fumigation problems.

Ask for Piping System Bulletin 1026.

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The safer fumigant because of its safety warning

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Ingredients: 80%
Dichloro Difluoro Methane
Trichloro Monofluoro Methane
CAUTION:
Do not expose to temperatures
above 120° F., such as in windows,
on stoves, or radiators, etc. Avoid
spraying over uncovered foods.

your name

air sanitizer and
deodorant bomb

DIRECTIONS
AS AN AIR DEODORANT:
Spray freely into atmosphere to help
overcome musty and unpleasant
odors caused by cooking, stale
smoke, refuse, etc.
**AS A BACTERIOSTATIC
DEODORANT:**
Clean surfaces well with soap and
water. Hold bomb about 12 inches
from surfaces and mist freely.
USEFUL IN:
Hospitals Homes
Hotels Dairies
Theaters Veterinary Offices
Kennels Markets
Taverns Dry Goods Stores
Restaurants Motels
Schools Business Offices

CONSUMER

Ingredients: 80%
Dichloro Difluoro Methane
Trichloro Monofluoro Methane
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Your Name
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Kennels Markets
Taverns Dry Goods Stores
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Schools Business Offices

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Your Name
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USEFUL IN:
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Hotels Dairies
Theaters Veterinary Offices
Kennels Markets
Taverns Dry Goods Stores
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Schools Business Offices

YOUR CUT

Your Cut
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DIRECTIONS
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Theaters Veterinary Offices
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Taverns Dry Goods Stores
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Deodorant Bomb

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An Air Sanitizer with more
than just regular deodorant
action. Contains specially
formulated sanitizing pro-
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clean, fresh odor. Available
in 3 popular fragrances:

1. Mint
2. Floral
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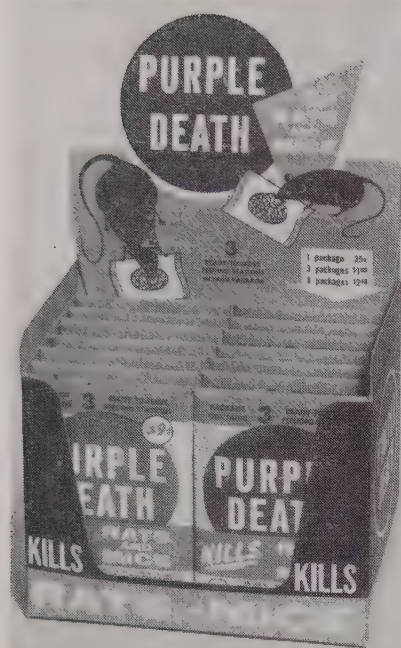
An order of 12 dozen gives you these 3 advantages:

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Priced as low as \$6.25 in 12 dozen quantities for 12 ounce
size. Greater savings on larger orders.

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Purple Death, manufactured by O. E. Linck Co., Clifton, N.J., is a new rat, mouse rodenticide. Toxicant is thallium sulphate.

Linck Markets Purple Death

Purple Death, new rat and mouse control suitable for PCO use and resale, has been placed on the market by O. E. Linck Company, Inc., Clifton, New Jersey, manufacturers of Mo-Go for mole and gopher control and Tat insecticides.

Purple Death is said to use an entirely different bait attractive to rodents. Reportedly high in proteins, minerals, and vitamins, this bait has as its toxicant thallium sulphate which is "locked in," according to the manufacturer.

A single good feeding of Purple Death is claimed to be sufficient to assure certain kill. Purple Death is packed in polyethylene lined feeding stations which retain odor of bait until placed in use. Each feeding station can kill six to eight rats or 10 to 15 mice, Linck says. However, a rodent may consume more than a lethal dose.

Prices of Purple Death permit dealer profits of 48%. O. E. Linck Co. reportedly also will cooperate in local advertising by allowing 50 cents for each carton purchased.

\$19,500 Bird Control Contract

A \$19,500 contract to rid the inner court of the Albany, New York state Capitol of pigeons has been awarded to Joseph H. Fink, National Bird Control Laboratories, Skokie, Illinois.

Sanitation Violators

Unlawful contamination of food and infestation of dwellings by insects and rodents is bringing seizures or condemnations by Federal, state and local enforcement authorities. Here are some of the latest violations and convictions.

The skipper of a freighter docked on the Oregon coast forfeited a \$30 bond to municipal police there recently following his arrest by harbor authorities on a charge of failure to have his tied-up ship properly equipped with rat guards.

Bread sticks contaminated with insect parts and prepared in an insanitary plant resulted in a \$100 fine and \$40 in court costs for a Hartford, Connecticut food plant manager.

The president and vice president of a Camden, New Jersey bakery were placed on three years probation and their firm was fined \$500 for handling bread and rolls contaminated with insects and prepared under insanitary conditions.

In Long Island, New York, a milling and elevator company, and its president and vice president were fined \$150 each plus costs of \$62.40 for storing flour in a rodent- and insect-infested building.

A \$500 fine was levied against a Hinesburg, Vermont cheese company and another \$500 fine against its president for dealing in cheese contaminated with insect filth and prepared under insanitary conditions.

A Brooklyn, N. Y. food processor was found guilty of preparing pickles, contaminated with insects, under insanitary conditions. He served five days in jail before the rest of his 30-day sentence was set aside. He was placed on probation for one year and one day.

A Bristol, Pa. packing company and its secretary were fined \$500 each because company-manufactured tomato catsup contained decomposed material, fly eggs and maggots.

A \$300 fine plus court costs totalling \$50 were levied against a Napoleon, Indiana creamery operator guilty of preparing butter in an insanitary plant and with filthy cream containing insect fragments.

Manager of a pastry firm in Boston, Massachusetts has been put on probation for one year and his company fined \$1,000 for preparing food products under insanitary conditions and having

fig bars, brownies, and rolls contaminated with insect and rodent filth.

An injunction permanently enjoining from interstate shipment any beans contaminated by rodent filth has been issued to an Oakland, California bean cleaning and warehousing company.

Candy contaminated with rodent and insect filth and prepared under insanitary conditions in Dunn, N. C. resulted in a \$600 fine for its manufacturer.

A food processor in Minneapolis, Minnesota was given a one-year suspended jail sentence and placed on probation for two years because noodles and rice on his premises were contaminated with rodent filth and held under insanitary conditions.

Contamination of stored popcorn and beans with insects and rodents resulted in a \$500 fine plus court costs for a Manhattan, Kansas food processing firm. Another food dealer in Atchison, Kansas was fined \$100 plus \$35 costs for rodent contamination of stored popcorn.

A Spencer, West Virginia wholesale food outlet and its president were fined \$500 jointly for dealing in flour that was contaminated with rodent filth and held under insanitary conditions.

Management of an Alliance, Ohio bakery was fined \$500 when cinnamon rolls and coffee rings on bakery premises were found contaminated with insect and rodent filth.

A low-rent area landlord was fined \$200 in Newark, New Jersey's Housing Court for 12 violations of its Housing Code. Violations included, among others, failure to keep yards and cellars free of debris, rat infestation, structural defects, and broken windows. An earlier violation several days before resulted in a \$100 fine for him.

To Vector Control Job

Dr. A. W. Buzicky, assistant state entomologist for Minnesota, has been named director of the Twin Cities vector control program by the Twin Cities Metropolitan Area Mosquito Abatement Board. The position carries with it an annual salary of \$12,000.

Buzicky was one of 15 applicants seeking the directorship of the six-county Twin Cities area. Selection of his staff and adoption of winter control measures are expected soon.

MALRIN

REPORT

NUMBER 4

Malrin Now an All-Purpose Insecticide

FOR GENERAL P.C.O. WORK

MALRIN is now accepted for the control of nearly all important household insects. Follow these directions for use of 55% Malrin Oil Soluble Concentrate . . . diluted in the proportion of 10 fluid ounces per gallon of deodorized or suitable oil carrier.

- German Cockroaches
- Brown-Banded Cockroaches
- Oriental Cockroaches
- Ants
- Spiders
- Wasps
- Silverfish
- Earwigs
- Crickets
- Fleas

Spray or paint with hand or power equipment where insects are seen or hide. Treat such places as baseboards, inside cabinets, under sinks, drainboards, stoves, storage units, in cracks and crevices, behind shelves, in basements and attics and so forth. Most surfaces - including metal - so treated, will continue to kill these insects for several weeks. Treat thoroughly and repeat as necessary.

Clean and spray thoroughly to reach all hiding places. Clean and brush fallen articles. Hold sprayer 2 feet from articles sprayed so as to thoroughly moisten, paying particular attention to seams and folds. Allow sprayed articles to dry completely before using. Repeat applications every 30 days unless articles are stored in moth-tight containers previously cleaned and sprayed with the above mixture.

- Moths
- Carpet Beetles

Take beds, dressers and other furniture apart and thoroughly spray slots, springs and all cracks and crevices. Thoroughly spray entire mattresses, especially seams and tufts, and allow to dry completely before using. Spray all cracks and hiding places in rooms—behind woodwork, loose wallpaper, picture frames, molding. Repeat applications as necessary.

- Bedbugs

MALRIN is safe — the safest material with respect to man and warm-blooded animals available for the control of resistant roaches, fleas (inside and outside), houseflies, mosquitoes and many

other types of insects. Use for indoor and outdoor wet spraying . . . indoor and outdoor misting and fogging . . . indoor and outdoor dusting.

We recommend 5% MALRIN DUST as a replacement for sodium fluoride for German roach control . . . more effective and less hazardous to use. Free samples on request.

Write for new, complete MALRIN Manual

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on such items as:

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(get your money's worth, and use safely.)
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(mix sprays for economy and efficiency.)

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Dr. E. H. Fisher, Editor

Entomology Department
University of Wisconsin
Madison 6, Wisconsin

Notebook

TIPS AND IDEAS FROM THE FIELD

Flue Flies

by Aaron N. Fleischer

Astor Exterminating Company
Cambridge, Massachusetts

Recently I was called out to inspect a home for green bottle flies. The second floor apartment of the two-family house was loaded with them, but the first floor had none, despite the fact that many berry-producing bushes on the ground level were attracting great numbers of the pests. And two hours of crawling around in an unfinished attic above the infested apartment failed to yield any evidence of decaying organic material in which the flies breed.

Still puzzled over the source of fly attraction, I sold the customer some Diazinon for spraying the shrubbery around the house and the window-sills of the infested apartment. But . . . the flies persisted.

Several days later when I revisited the apartment, the customer made an off-hand remark that his gas bill for the preceding month was double the normal amount. Then I got a hunch. Possibly the flies were entering his home from the outside by coming down the flue of his gas stove. I put a plastic bag over the flue and, sure enough, trapped several flies. A closer inspection of his stove revealed a small gas leak just inside it.

Illuminating gas is scented with a slight onion smell and this escaping from his stove was sufficient to attract green bottle flies into the home in great numbers. With the gas leak fixed, the flies disappeared.

Rats Bite Cincinnati Infants

Twenty-three rat-bite cases, more than 50% of them involving infants and children, have been reported in Cincinnati, Ohio so far this year.

George W. Schubert, supervisor of rat control for the city's Board of Health, said the high incidence of cases involving babies could probably be blamed on the fact infants usually smell of food and attract rats. He particularly urged homeowners with children to ratproof their residences.



Nose Plug. To keep insects out of the open noses of FJ-4 Fury Jets at Akron, O. while the aircraft await delivery to the U. S. Navy, air officials are using a new plastic cover manufactured by Westerville (Ohio) Industries. It is made of "Seilon," a polyvinyl chloride developed by Seiberling Rubber Co.

Dr. Lembach Addresses NJPCA

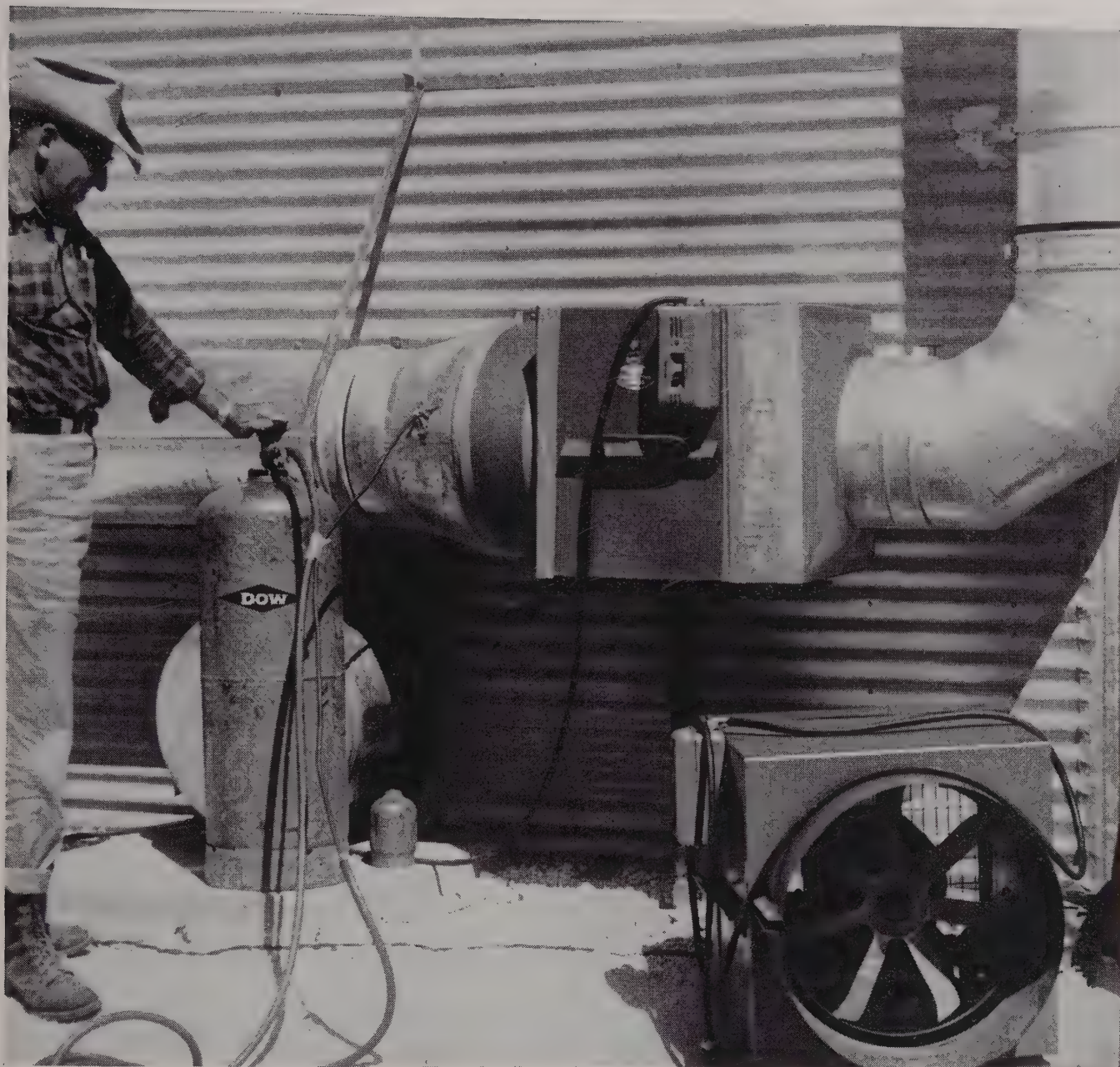
At their first meeting of the 1957-58 season on October 16, members of the New Jersey Pest Control Association heard an address by Dr. John V. Lembach, Residex Corp., Linden, N. J., on "A Practical Approach to the Resistant Roach Problem."

Cautions Against Use of "Wrong Respirator"

The use of not just any respirator but the right one is essential in the handling of insecticides, according to Dr. Ellsworth H. Wheeler, Extension entomologist at the University of Massachusetts, Amherst.

"Certain respirators have been tested and found to give adequate protection against dusts, mists, and low vapor concentrations of certain insecticides," Wheeler says. "Yet respirators do not provide needed protection from inhalation of these dusts or vapors when insecticides are being mixed in closed or inadequately ventilated spaces. Full-face gas masks equipped with tested canisters should be worn under these conditions."

Although respirators afford protection under certain conditions, their use is not a substitute for essential precautions, Dr. Wheeler warns. Filters should be changed twice a day or oftener if breathing becomes difficult. Cartridges should be changed after eight hours of use or oftener, if odors are detected. Dr. Wheeler also advises that parts of the respirator should be washed with soap and warm water after use and the entire unit stored in a clean, dry place.



Recirculation of Dow Methyl Bromide for **fumigation with measured safety and results**

In fumigating bulk commodities, the natural advantages of Dow Methyl Bromide are used to best effect when applied by the forced air recirculation method.

This method of fumigating with methyl bromide makes an exact science of fumigation. It results in quick and uniform distribution of the fumigant in the grain mass, thereby assuring complete control of the insects.

You can save up to 50 percent in fumigant costs by recircu-

lation because dosages are lower—fumigant distribution is better. Your present aerating system can probably be adapted to this improved fumigation process.

Fast-acting, Dow Methyl Bromide is also a superior fumigant for other uses such as vault, tarpaulin and box car, as well as building fumigation.

Write for further information on the recirculation process. Fumigant Sales Section, THE DOW CHEMICAL COMPANY, Midland, Michigan.

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FLAME CHEK, which can easily be applied by spraying, falls very easily within the scope of the modern PCO's operations and can add immeasurably to his volume and his business reputation.

FLAME CHEK has received the commendation and approval of fire departments all over the country. Why not write us today and investigate the opportunities that are available through offering a "FLAMEPROOFING SERVICE" with **FLAME CHEK**.

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Many pest control operators are realizing extra profits by operating our 5 YEAR GUARANTEED MOTH CHEK MOTHPROOFING SERVICE. MOTH CHEK has been proven effective in numerous independent laboratory tests.* CHEK CHEMICAL PRODUCTS COMPANY, INC. issues a 5 year warranty against moth damage and assumes 100% responsibility in the event of a claim of moth damage.

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Gas Mask Protection For Eye-Glass Wearers

If you wear eye glasses, you no longer have to put up with the hazard of ill-fitting gas masks worn over your regular spectacles. This exclusive new Acme "Spec" mask now gives you a face piece with all the proved Acme safety features PLUS built-in eye glasses ground to your individual prescription.

You can get the Acme "Spec" mask complete with personal lenses by sending your doctor's prescription with your order. Or, if you prefer, the mask can be furnished with stirrup bracket and front ready for your doctor to mount your proper lenses.

Either way, you get the perfect vision, safety and comfort along with the Acme advantage of one face piece serving multiple uses.

For details on this timely Acme development, write for Bulletin No. 576 and No. 576-A (Prescription Form).

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Michigan

Infestation Report

Contains pertinent portions of the Department of Agriculture's Cooperative Economic Report, material from university entomology departments and reports from readers. PCOs noticing infestations in their own areas are urged to communicate with Pest Control so their information may be added to this infestation report.

ANT

Connecticut: Many square miles of water surface between Welch's Point and Pond Point on Long Island Sound covered with winged forms of *Lasius claviger claviger*. Counts 35 to 50 per square foot. **Idaho:** Swarms annoying to householders in Twin Falls area.

BOXELDER BUG

(*Leptocoris trivittatus*)

North Dakota: Numerous infestations in several western area localities. Invasion of some homes reported.

CARPET BEETLES

North Dakota: Home infestations continue to be reported from many sections. Inquiries more numerous this year than previously.

CONFUSED FLOUR BEETLE

(*Tribolium confusum*)

Arizona: Numbers increasing most stored grain. Some storage treated in Pinal County.

A DERMESTID

(*Trogoderma parabile*)

Nevada: Medium infestation in stored products in local market, Reno, Washoe County.

EARWIGS

Utah: Numerous complaints from homeowners in several counties.

FIELD CRICKET

(*Acheta assimilis*)

Maryland: Annoying householders in Annapolis, Towson, and Chestertown.

FLEAS

Alabama: Large numbers of *Ctenocephalides felis* infesting houses and lawns in east central area. **Georgia:** More abundant than usual. Infestations of homes, yards, and animals. **North Dakota:** Basement infestations of *Ctenocephalides felis* numerous in many sections of state.

HOUSE CRICKET

(*Acheta domestica*)

California: First record from Imperial County. One specimen taken in gin trash machine operating on cotton insect survey.

HOUSE FLY

(*Musca domestica*)

Nebraska: Populations increased.

North Dakota: Numerous and annoying in Fargo vicinity. **Rhode Island:** Adult populations increased in West Kingston area. **South Dakota:** Prevalent in Brookings area. **Utah:** Continue a problem, scattered localities.

IMPORTED FIRE ANT

(*Solenopsis saevissima richteri*)

Survey: Current information indicates states in order of acres infested are Alabama, Mississippi, Louisiana, Texas, Florida, Georgia, and South Carolina. In Union County, Arkansas, 11,153 infested acres have been treated. No known infestations

in North Carolina, Oklahoma, or Tennessee. Of approximately 185 counties infested in Southern Region, about 75 have infestations of less than 1,000 acres and 60 counties have over 100,000 acres. Incipient infestation at Lutz, Hillsborough County in Florida being treated in attempt to eradicate. Lutz most southern point of infestation in state. Report from Blount County in Alabama first record from that county.

KHAPRA BEETLE

(*Trogoderma granarium*)

Survey: Four new infestations totalling approximately 1,106,000 cubic feet found in Arizona and California. Two in Arizona totalled about 706,000 cubic feet and two in California, approximately 400,000 cubic feet. Plans completed for treatment of all known infestations in both states.

MILLIPEDES AND SOWBUGS

Nebraska: Large numbers invading homes in eastern area.

MOSQUITOES

California: Still numerous in parts of northern Sacramento Valley. *Aedes nigromaculis* trapped most of San Joaquin Valley, but generally in small numbers. *Psorophora fennii* decreased somewhat in south central Riverside County, but still numerous. *Culex tarsalis* females taken in light traps in diminishing numbers. Bureau of Vector Control reports indicate gradual but definite increase in populations in coastal, San Joaquin, and Sacramento Valleys. Continuing numerous in parts of northern Sacramento Valley. **Nevada:** Becoming a nuisance in Reno-Sparks area, Washoe County. **North Carolina:** Numerous on Orton Plantation in Brunswick County, and in Carteret and Pamlico Counties. **Rhode Island:** Moderate numbers biting at Kingston. **South Dakota:** Very abundant in northern portion of Marshall and Roberts Counties. **Utah:** Continue annoying number of locations. Seriously abundant at Kanah, Heber City, parts of Sevier, Uintah, Tooele and Millard Counties.

OLD HOUSE BORER

(*Hylotrupes bajulus*)

Pennsylvania: Two infestations reported in houses, Allegheny County.

PUSS CATERPILLAR

(*Megalopyge opercularis*)

Mississippi: Boy stung on leg, causing so much pain and swelling, hospitalization required.

A TENEBRIONID

(*Tribolium destructor*)

Washington: Single specimen found infesting food in home in Seattle. New record for state.

TERMITES

Oregon: Reproductive forms of *Zootermopsis angusticollis* began migrating in western area. Numerous inquiries received. **Wisconsin:** Infestations of *Reticulitermes flavipes* in Sheboygan County.

TICKS

Alabama: *Rhipicephalus sanguineus* numerous in Lee County. **Oklahoma:** Extremely serious in Atoka County.

A WEEVIL

(*Trachyploeus bifoveolatus*)

Oregon: Entering homes in Coos County. Apparently first record in county.

BE SAFE! BE SURE! with the **ONLY**
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GROSLEY'S ORIGINAL

"NO-ROOST" STARLING TREE SPRAY



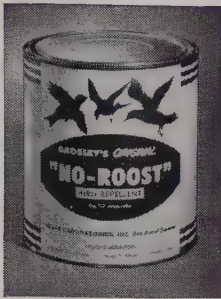
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This non-poisonous gelatin chemical compound effectively eliminates the "bird-pest" problem. Makes it a physical impossibility for pigeons and other birds to roost on any building or structure where formula is applied. Long-lasting, safe, economical. Proven successful throughout the U. S. and Canada for many years. Approved by leading PCO's. In 1 gallon, 5 gallon and 55 gallon drums and cartridges for caulking guns. Also available from Federal Supply Service Stock No. 51-R-684.

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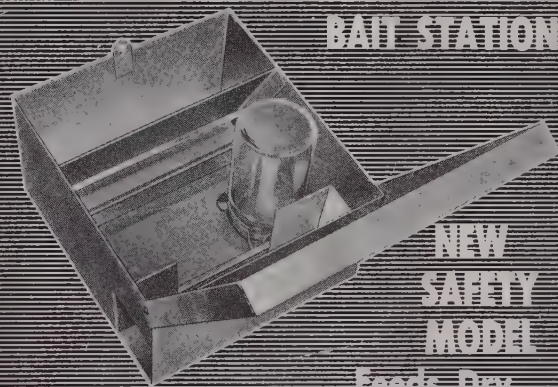
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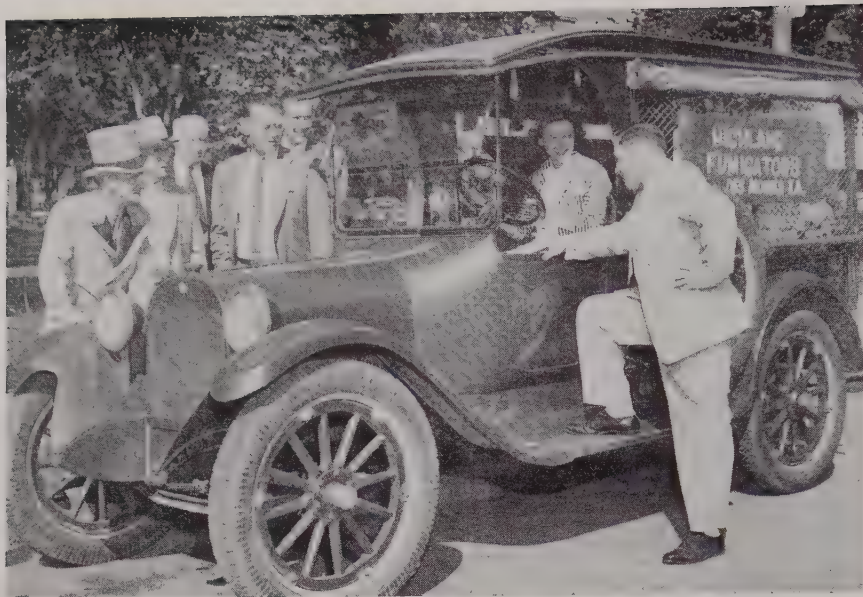
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Safety entrance protects pets and poultry.
Double spill rail keeps bait inside.
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Compact, sensible, economical.

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Madison 4, Wisconsin



Replica of 1918 Service Vehicle, one used by Highland Fumigators of Des Moines, Ia. in the 1920's, was on display at a recent meeting of the Iowa Pest Control Association in Council Bluffs. Shown here admiring the vehicle are, left to right, Fred Michils, Des Moines; John P. Linn, Industrial Termite Control, Inc., Omaha, vice chairman of the meeting; Henry R. Isherwood, The Antimite Co., St. Louis, Mo.; Dr. Harold Gunderson, Extension Entomologist, Iowa State College, Ames; Robert Bosch, Entomological Engineering Co., Muscatine; and Gene Kennedy of Council Bluffs. Behind the wheel is Mrs. Joey Robar, Robar Pest Control, Sioux City. The association meeting lasted two days.

Pesticide Official Retires

Percy Overholt, Associate Chief of Pesticides Inspections Services, Canada Department of Agriculture, Ottawa, has retired after

32 years of service. He became administrative officer of the Section in 1949, and shortly after, Associate Chief. He joined the department as a seeds inspector in 1925.

Publications for PCOs

Here are the latest government, university and association publications of interest to pest control operators. Some can be obtained free of charge, while others are nominally priced. When ordering, include title and catalog number, if any. Sources follow booklet titles.

Market Analysis Tool—County Business Patterns. 1957. 40p. 20c. Government Printing Office, Washington 25, D.C. or from Department of Commerce, either the Washington, D.C. office or any of its 33 field offices.

Pest Infestation Research 1956. 64p. British Information Services, 45 Rockefeller Plaza, New York 20, New York. 86c.

For copies of the following booklets, write the Superintendent of Documents, Government Printing Office, Washington 25, D. C. and enclose your remittance:

Grasshoppers, New Look at an Ancient Enemy. Rev. 1957. 40p. 20c. Catalog No. 1.9:2064/2.

Silverfish and Firebrats, How to Control Them. 1957. 6p. 5c. Catalog No. A 1.35:412.

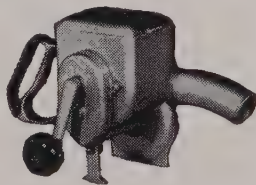
Directory of Full-Time Local Health Units. 1956. 72p. Catalog No. FS 2.77:956. 30c.



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SMITH PESTMASTER DUSTER

World's lightest, smoothest and easiest working insecticide duster. Weighs 1 1/4 lbs. Non-rust, all metal construction. Throws 9 ft. dust stream. Nothing matches it. Very popular.



DDT 4 Gal. COMPRESSED AIR SPRAYER

The finest compressed air sprayer made. High pressure gauge, brass connections, brass valve. For all spraying purposes. Adjustable nozzle. 7 ft. oil proof hose. Automatic shut-off trigger control. Uniform pressure. Far superior to other styles.

Built by the originators of sprayers, the SMITH line is unexcelled in engineering and performances . . .

Send for catalog on complete line of all styles and sizes of sprayers for pesticide use.



D. B. SMITH & CO., 440 Main St., Utica 2, N. Y.



The ORB BOMB contains a high potency non-toxic formula made especially for commercial and industrial use. Only 2 seconds is needed to treat 1,000 cu. ft. of space for flies. Controlled spray rate prevents waste. Fine particle size eliminates spotting. For use in control of houseflies and fruit flies. May also be used in place of space sprays in large areas of several hundred thousand Cu. Ft. or more when fitted with convenient "Complete discharge valve."

In 3/4, 1 1/4 and 3 lb. sizes.

ALSO. . . ORB Air Refresher & Deodorant aerosol bomb, in an odorless formulation or several pleasing fragrances.

ALSO. . . ORB Linspray. A completely odorless residual for all-around use. Especially useful in carpet beetle control.

Jobber inquiries invited



Write for prices, details

Wallingford Rd.
Media, Penna.

Midget Aerosol by Fairfield

A "midget" insecticide aerosol container 4" long and 1 3/8" in diameter, containing two ounces of what is said to be highly concentrated active ingredients, has been developed by Fairfield Chemical Division, FMC, 441 Lexington Ave., New York, N. Y.

Fairfield says its new aerosol is as effective as the conventional 12-ounce bomb, since it is operated by a meter valve, which dispenses only one-sixth the amount

of insecticide the larger models do.

Active ingredients of the Improved Pyrenone formula, pyrethrins and piperonyl butoxide, are reportedly six times more concentrated than those in a 12-ounce bomb.

Diamond Consolidates

Diamond Black Leaf Company of Cleveland, Ohio, producer of chemicals for farm use and garden and lawn products for home use, has been integrated with Diamond Alkali Company,

also headquartered in Cleveland.

Loren P. Scoville, General Manager of Diamond Alkali's Chlorinated Products Division, said the former Diamond Black Leaf Company now becomes Diamond Black Leaf Products, a unit of Diamond Alkali.

Maclean Offers Chlorothene

Neil A. Maclean Co., Los Angeles, and San Francisco, is now offering Chlorothene for use in place of carbon tetrachloride in fogging operations.



This amazing FUMO-KILL insecticide is by all qualifications a leader in its field.

Two Way MONEY MAKER ! FUMO-KILL

USE IT! SELL IT!
FUMO-KILL has the following advantages:
EASY TO USE: Requires no Special Equipment. ECONOMICAL TO USE: Two ounces fumigates up to 6,000 cubic feet.

FUMO-KILL is truly the modern method of insect extermination. Light match to contents of can, will produce fumes — NO FLAME. Non-hazardous. This amazing FUMO-KILL insecticide has been tested, and found effective against most types of household pests.

The New Effective Fumigant That Will Kill

Mosquitoes, Flying Moths, Spiders, Silverfish, Flies, Wasps, and Exposed Waterbugs, Roaches, Bedbugs, and Ants.

Follow instructions on can for best results.

FUMO-KILL can be obtained in 2 oz. (enough for up to 6,000 cubic feet)—4 oz. and 1-lb. cans.

Cost of 12—2-oz. Cans . . . \$7.50 per doz.

Cost of 12—4-oz. Cans . . . \$13.50 per doz.

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Why waste valuable time
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USE **DB 455** when
Rat Odors Strike!

Don't look for impossible-to-find carcasses. In practically every case, merely sprinkling DB 455 on the floor or into shallow containers completely solves the problem. A 1/4-pint bottle takes care of most rat-odor problems. Nothing could be simpler to use. Earn additional income selling DB 455 to fish stores, hospitals, for restaurant use, etc.

24 1/4-pints DB 455 . . . \$9.00

For a free sample or further information write on your letterhead to

521 Market St. **SUSAN PRODUCTS** Youngstown, O.



TYPE S-56 — recommended for starlings, sparrows and small birds although it is generally effective against pigeons.

TYPE C-57 — recommended for the face of the building wall and to repel climbing animals, rodents, mammals and human beings from ascending trees, docks, etc.

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TYPE H-55 1/2 — recommended for installations on frieze work and ledges 2" wide or less.

**NIXALITE®
BIRD BARRIER
NOW OFFERS
4 TYPES
FOR MAXIMUM
REPEL-ABILITY**

Your specific bird problem — your building and its structural features — these all-important factors determine the correct Nixalite installation to banish birds from your building permanently. Nixalite, the man-made porcupine, with its myriads of needle-sharp springy stainless steel prongs, keeps birds flying. Lasts a lifetime, yet pays its own way in just one year.

send for
introductory
folder



NIXALITE COMPANY OF AMERICA
115-119 W. 3rd Street Davenport, Iowa, U. S. A.

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When answering ads where box number only is given, please address as follows: Box number, c/o Pest Control, 1900 Euclid Avenue, Cleveland 15, Ohio.

Rates: "Position Wanted" 5c per word, minimum, \$1.00. All other classifications, 10c per word, minimum \$2.00. All classified ads must be received by Publisher at least three weeks preceding publication date and be accompanied by cash or money order covering full payment.

HELP WANTED

IMMEDIATE OPENINGS for pest control operators, with "top" experience, in our Caribbean offices. Permanent and temporary positions available. High salaries, maintenance and transportation furnished. Unusual opportunities. Write or wire immediately L. L. Crosby, president, Commonwealth Sanitation Co., 3567 Bigelow Blvd., Pittsburgh 13, Pa.

GENERAL SALES MANAGER for one of the oldest and largest pest and termite control companies undergoing dynamic expansion. Capable to direct entire sales effort over eight state area. Know promotion, advertising, and market tech-

STATEMENT OF OWNERSHIP

Statement required by the Act of August 24, 1912, as amended by the Acts of March 3, 1933, and July 2, 1946 (Title 39, United States Code, Section 233) showing the ownership, management and circulation of Pest Control, published monthly at Painesville, Ohio, for September 28, 1957.

1. The names and addresses of the publisher, editor, managing editor, and business managers are: Publisher, Trade Magazines, Inc., 1900 Euclid Avenue, Cleveland 15, Ohio; Editor, James A. Nelson, 1900 Euclid Avenue, Cleveland 15, Ohio; Managing editor and business manager, none.

2. The owner is: (If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding 1 per cent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a partnership or other unincorporated firm, its name and address, as well as that of each individual member, must be given.)

Trade Magazines, Inc., 1900 Euclid Avenue, Cleveland 15, Ohio; James A. Nelson, 1900 Euclid Avenue, Cleveland 15, Ohio

3. The known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are: (If there are none so state.) None.

4. Paragraphs 2 and 3 include, in case where the stockholder or security holder appears upon the books of the company as the name of the person or corporation for trustee or in any other fiduciary relation, whom such trustee is acting; also the statements in the two paragraphs show the affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner.

5. The average number of copies of each issue of this publication sold or distributed, through the mails or otherwise, to paid subscribers during the 12 months preceding the date shown above was: (This information is required from daily, weekly, semiweekly, and triweekly newspapers only.)

JAMES A. NELSON, Publisher
Sworn to and subscribed before me this 28th day of September, 1957.

WILLIAM A. BROWN, Notary Public
My commission expires January 20, 1960.

niques. Experience in our field or allied to pest control essential. Must be competent to develop and work with district managers and sales personnel in the field. Top salary plus bonus and interesting potential. All replies of course confidential. Answer in detail to E. N. Goldey, President, Bliss Exterminator Co., Inc., 151 Lexington Ave., New York 16, New York.

OPPORTUNITIES UNLIMITED. The world's largest pest control organization (AAA-1 rated) has interesting openings for men with initiative and ambition. We operate in 28 states from coast to coast and there are opportunities open in many phases of our operation . . . servicemen, managers, technical representatives and salesmen. Experience in professions related to pest control helpful, though not necessary. Liberal salary and incentive arrangements provide unparalleled opportunities for men with good judgment and the ability to get along with people. Our firm, over 50 years old, offers employee benefits including paid vacations, sick leave, life insurance, hospitalization and pension plan. All replies confidential. Interviews in Atlanta at our expense. Write in detail to Orkin Exterminating Company, Inc., 713 Peachtree Street, N.E., Atlanta, Georgia. Attention: Personnel Department.

ENTOMOLOGISTS and engineers with practical experience in pest or termite control to manage various divisions of our organization. Career opportunity. All replies confidential. Write in detail experience and technical background. E. N. Goldey, President, Bliss Exterminator Co., Inc., 151 Lexington Ave., New York 16, New York.

ENTOMOLOGISTS with structural pest control experience. We have immediate openings for aggressive young men with sales ability and minimum of 2 to 3 years of structural pest control experience to manage offices. Liberal salary, commissions and over-rides enabling hard workers to earn \$8-\$10,000 annually. Many other company benefits. Must be available immediately. Write giving experience and small non-returnable photograph. Interviews in Pittsburgh at our expense. Write L. L. Crosby, President, Commonwealth Sanitation Co., 3567 Bigelow Blvd., Pittsburgh 13, Pa.

WANT TO BUY

WILL PAY TOP PRICE for exterminating business in New York City area. Cash. Replies confidential. Box 439, Pest Control magazine.

PEST CONTROL BUSINESS in Boston, Worcester, or eastern Massachusetts. All replies confidential. Write Braman Chemical Co., Box 2043 Station A, Worcester, Massachusetts.

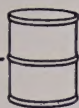
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**save chemicals
save time**



WITH SPRAYING EQUIPMENT BY

SPRAYING SYSTEMS CO.



TRIGGER TEEJET HAND SPRAYERS—with choice of interchangeable orifice tips for flat, cone and straight stream sprays. All capacities. Quality shut-off valve. Write for Bulletin 68.

GUNJET SPRAY GUNS—heavy duty. Throw spray up to 49 feet at 100 psi. Adjustable by turning handle or trigger. Write for Bulletins 69 and 80.



JAR SPRAYERS—for all chemicals including chlorine. Plastic jar unscrews from cap for easy filling. Write for Bulletin 76.



TEEJET SPRAY NOZZLES—choice of over 400 interchangeable tips for every type of spray.

SPRAYING SYSTEMS CO.

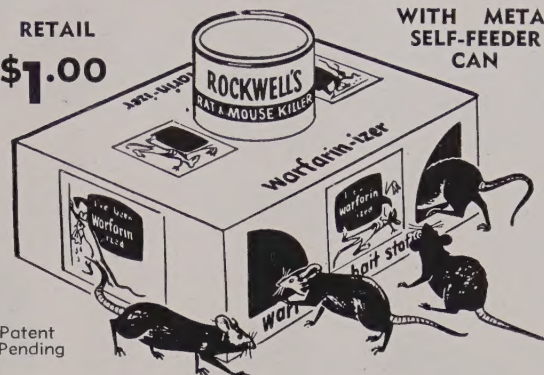
3221 RANDOLPH STREET • BELLWOOD, ILLINOIS

GREATEST DOLLAR ITEM ON THE MARKET!

**ROCKWELL WARFARIN-IZER
DISPOSABLE BAIT STATION**

RETAIL
\$1.00

WITH METAL
SELF-FEEDER
CAN



Patent
Pending

COMPLETELY SANITARY • AMAZING LOW COST

An entirely new approach to your rat and mouse control problem. . . a **SELF-FEEDER** that dispenses a constant flow of fresh bait . . . and a low-cost, **DISPOSABLE** bait station. No more cleaning messy permanent bait stations - no more dangerous scattering of bait. You simply place Rockwell's metal self-feeder can in the bait station which meets the sanitary requirements of food and processing plants.

WHERE ELSE ON THE MARKET IS IT POSSIBLE TO BUY ONE POUND OF WARFARIN AND A BAIT STATION FOR ONE DOLLAR. WRITE FOR LITERATURE AND JOBBER PRICES TODAY!

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300 South Third Street

Kansas City 18, Kansas



**NEW...and IMPROVED
WELL CONSTRUCTED**

POWDER GUN

60¢
EACH

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Where Applicable

For further information write:
Purchasing Department
ORKIN EXTERMINATING CO., INC.
713 West Peachtree St., N.E.
Atlanta, Georgia



Since 1901

WORLD'S LARGEST PEST CONTROL COMPANY

MICE GLUE

GETS MICE LIKE FLYPAPER GETS FLIES

7½ lbs. \$1.00 per lb. 25 lbs. \$.90 per lb.
100 lbs \$.80 per lb.

BIRD-REPELLENT

Keep Pigeons, Starlings and Other Birds from
Buildings

7½ lbs. \$1.00 per lb. 25 lbs. \$.90 per lb.
100 lbs \$.80 per lb.

PEST CONTROL CHEMICAL CO.

324 Broadway Write for details Buffalo, N. Y.

THE FAVORITE WITH P.C.O.s

It is light...compact...with the easy hand grip and control—no dripping.

Trigger Operates High Pressure Hydraulic Piston . . . With Ease . . . No Heavy Pumping.

Equipped with 1 quart brass bottom container. Large opening for easy and convenient filling.

1. Fine Fog.
2. Penetrating Pin Stream That Reaches 20 Feet or More.

• Can Be Used With All Type Liquids—Oils, Water, Emulsions, Deodorants, Moth Proofing Solutions, Etc.

**INTERCHANGEABLE NOZZLES
AVAILABLE IN THE FOLLOWING MODELS**

- | | | |
|--|----|---------|
| 1. Straight Extension | B1 | \$10.25 |
| 2. Swivel Directional Extensions | B3 | 10.50 |
| 3. Both Straight and Swivel Extensions | B4 | 10.75 |

On orders of 6 or more units — 10% discount.

For all-copper containers for any model add \$1 to each sprayer price.

WARRANTED TO GIVE LONG UNINTERRUPTED SERVICE AND USE

So Rush Your Order in TODAY!



IDICO PRODUCTS CO.

1 West 125th St., New York 27, N. Y.

Pestales

Back Home. Joseph (Jud) J. Pestana, Jr., a '55 Purdue PCO course graduate, has returned home, after a two-year stint in the Marine Corps, to become manager of the termite department in his dad's J. P. Chemical Co., Milford, New Hampshire. Jud's married to Paula Carle, and they have an infant daughter, Pamela Jo . . . Taft A. Pierce, who made his home in Miami, Florida for many years while working for Truly Nolen, moved northward to become manager of Orkin's operations in Tampa a couple of years ago. News just reached us that Taft has gone back

to Miami, where he's been made manager of the Orkin branch in his "home" city.

* * *

Soviet's Two-Faced Auto Industry. Moskvich automobile manufacturers in Moscow have been forced by white ants to produce two editions of their vehicle—one specially treated for tropical temperatures and another conventional model for the harsher Russian climate. Purchasers in Burma complain ants can eat the wooden and plastic parts of the regular model car seat in one night. *"Workers" in revolt, no doubt.*

* * *

No lie. Dick Prescott of Protex Pest Control in Chicago vacationed at White Sand Lake in Wisconsin this

fall and hooked a 10 lb., 11 oz. wall-eye during one of his fishing expeditions. He got his picture with the catch in the Lakeland Times of Minocqua, Wisconsin. Otherwise, Dick and his wife water-skiied while visiting his in-laws. PCO Earl A. Anderson of Lac du Flambeau, Wisconsin spotted the photo in the newspaper and sent it in to brag what can be accomplished in his part of the country. Earl's not inviting fellow PCOs to come up to go in competition with him, just welcoming colleagues who are looking for a fine vacation spot.

* * *

Dish Pan Pest Control. Soap sud spray, using a detergent, is credited by local officials in Mathis and Robstown, Texas with solving one of the worst cricket problems in the history of the two towns. In Mathis alone after a thorough sudsing down one week end recently with a fire truck, three truckloads of dead crickets were collected. *Times are when a PCO may elude one dishpan detail at home only to run smack into another at work.*

* * *

A PCO Death. Carl Cheatham, 54, owner of the Cheatham Termite and Pest Control Company, Beaumont, Texas, died recently in Beaumont. He had been a resident there for 45 years, but was a native of Daingerfield, Texas.

* * *

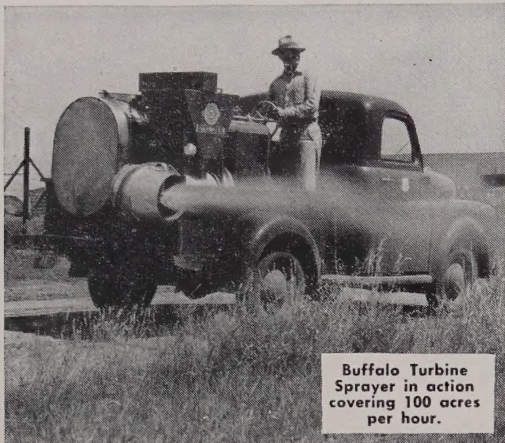
Costly fly control. A Detroit, Michigan man was fined \$10 for assault and battery last month after he nearly unseated a young femme in a Detroit restaurant while swinging at a fly. The assault and battery charge grew out of a scuffle that ensued between the plaintiff and the escort of his petite victim. *Maybe next time the convicted Detroit man will smarten up and call in a PCO to solve his problems—one with a lot of brawn.*

* * *

Magic. John Rodda, Fairfield sales manager, has become quite a magician lately. We recently witnessed a demonstration of the new non-staining Pyrenone in which an aerosol of the former Pyrenone concentration was applied to a piece of filter paper, leaving a slight yellowish spot. Then, another aerosol, formulated with the new non-staining Pyrenone, was similarly applied to the filter paper; and when it dried, there was no stain whatsoever. It's quite a demonstration, and John or one of his field men will be glad to show it to you, at the mere suggestion you're interested. We must confess, though, there's no magic involved. It's just a better product showing its stuff.

* * *

New Insecticide. Science is trying to isolate from silkworms a hormone that speeds up molting in insects and thus causes a sleeping pupa to become an adult prematurely. But it has taken 2½ tons of commercial silkworms to produce 1/1,000th of an ounce of material believed to be the mysterious substance. *At this rate, even if the hormone does work, we'll have to find another one less lethal to accelerate pupation of the silkworm.*



Buffalo Turbine Sprayer in action covering 100 acres per hour.

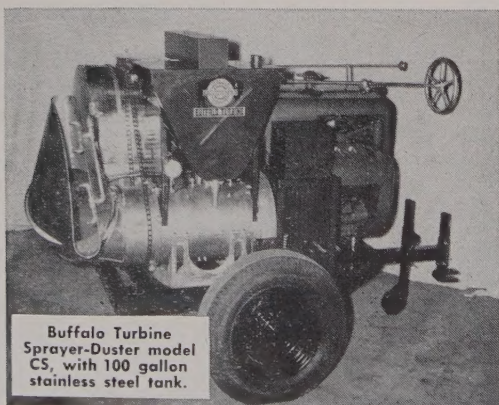
BUFFALO TURBINE

Now is the time
for Custom Operators
to Close Contracts

**IT'S EASIER TO LAND THOSE LARGE
SPRAYING CONTRACTS IF YOU ARE
BUFFALO-TURBINE EQUIPPED**

You establish a reputation for longer lasting, more efficient large-area insect control, when you Turbo-Dust and Turbo-Spray with Buffalo Turbine Equipment. A powerful "Turbulent Air" blast (14000 cu. ft. of air per min. at velocities up to 180 m.p.h.) atomizes and blows spray or dust to give a wider coverage than ever before attained.

Prepare now to land those highly profitable large area spraying contracts. You'll be surprised how little it costs to be Buffalo Turbine equipped!



Buffalo Turbine Sprayer-Duster model CS, with 100 gallon stainless steel tank.

for Mosquito and
Fly Control of Golf
Courses, Drive-ins,
Theatres, Amusement
Parks, Housing Areas,
Race Tracks, Baseball
Parks, Beaches,
Sports Arenas, etc.

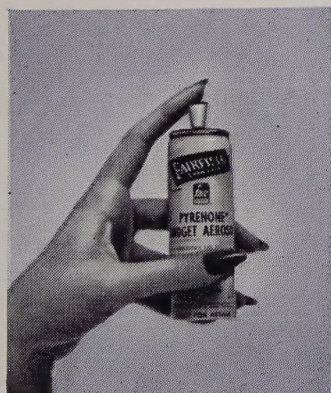
**BUFFALO TURBINE
AGRICULTURAL
EQUIPMENT CO., INC.**
70 Industrial Street
GOWANDA, NEW YORK

Another "first" for Fairfield...

MIGHTY MIDGET AEROSOLS



Clothing, luggage and sports equipment, courtesy Abercrombie & Fitch Co.



Now you can offer your customers a 2-oz. bomb that will do the work of a regular 12-oz. aerosol. It will cover the same area, too—because each particle of spray is 6 times more potent . . . in knockdown . . . and in kill.

The valve is metered to release 100 mg. of spray each time it is activated. This insures proper application, neither too much spray nor too little.

Although "mighty midgets" represent higher concentrations, they cost less than conventional aerosols of equal killing power. They exhibit no greater staining characteristics either. The reason is obvious: the single active ingredient is Improved Pyrenone*. And, of course, when used as

*Reg. U. S. Pat. Off., FMC

directed Pyrenone is *nontoxic*.

These miniature bombs will find many uses at the consumer level . . . in the home . . . and away from home. They'll point the way to new markets, bigger profits.

And remember, "mighty midgets" not only save metal and freon, but they save shelf space, too—cut way down on shipping costs.

Write Fairfield Chemical Division, Food Machinery and Chemical Corporation, 441 Lexington Avenue, New York 17. Branches in principal cities. In Canada: Natural Products Corporation, Toronto and Montreal.

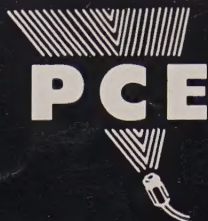
Improved **Pyrenone**



OTHER FMC CHEMICAL DIVISIONS: WESTVACO CHLOR-ALKALI Alkalis, Chlorinated Chemicals, Carbon Bisulfide
WESTVACO MINERAL PRODUCTS Phosphates, Barium and Magnesium Chemicals • BECCO CHEMICAL Peroxygen Chemicals
NIAGARA CHEMICAL Insecticides, Fungicides and Industrial Sulphur • OHIO-APEX Plasticizers and Resins • FMC ORGANIC CHEMICALS



**Successful
PCO'S
use these**



PRODUCTS

Rodent Control



Send for a
copy of
our
catalog



PIVAL - An anti-coagulant for rat and mouse control. The insect and mold-resistant rodenticide. 1 lb. plus 19 lbs. of suitable cereal will make 20 lbs. of a ready-to-use dry bait.

Prices:

5 lb. Canisters	\$1.75 per pound
25 lb. Drums	\$1.65 per pound
100 lb. Drums	\$1.55 per pound
1,000 Single Shipment	\$1.45 per pound

PIVALYN - An easy-to-use water-soluble anti-coagulant rodenticide.

One packet to one quart of water. Works with equal effectiveness in hard or soft water. Mold-resistant action provides excellent keeping qualities, even with sugar added. Pivalyn water baits hold up in field usage for 3 to 4 weeks without replacement.

Prices:

100 Units at 20c per packet	— \$20
200 Units at 18c per packet	— \$36
500 Units at 13c per packet	— \$65

for profitable

FUMARIN—22 - A new anti-coagulant for rats and mice. 1 lb. plus 19 lbs. of suitable cereal will make 20 lbs. of ready-to-use bait. Closely related chemically to warfarin.

Prices:

5 lb. Canisters	\$1.75 per pound
25 lb. Drums	\$1.65 per pound
100 lb. Drums	\$1.55 per pound
1,000 Single Shipment	\$1.45 per pound

FumaSol-A - For experimental purposes. A new water soluble anti-coagulant rat and mouse killer. 1 tablespoon to 1 quart (preferably with 2 tablespoons of sugar added) makes an acceptable efficient liquid bait.

1 lb. can	\$4.75 per pound
5 lb. can	\$4.25 per pound
10 lb. (25's)	\$4.10 per pound

CYANOGAS "A" DUST - For spot fumigation.

1 lb. cans	75c	25 lb. pails	\$10.30
5 lb. cans	\$2.85	100 lb. drums	\$24.80

We have available deodorants for carcass nuisance.



BAIT SET Keeps your baits appetizingly high, dry, clean. Bait Sets "snap" open into a rigid, untippable dish.

1000 to 5000	\$9.25 per M
5000 to 24000	\$8.75 per M
25000 to 49000	\$8.30 per M

PEST CONTROL EQUIPMENT CO.

24 NORTH BOND STREET MOUNT VERNON, N. Y.

Phone: MOUNT Vernon 8-1197